

Scientific Program Table of Contents

Tuesday, July 8

POSTER PRESENTATIONS

| | |
|---|----|
| Animal Health: Mastitis | 63 |
| Breeding and Genetics I | 63 |
| Dairy Foods: Cheese I | 65 |
| Extension Education | 66 |
| Food Safety | 66 |
| Forages and Pastures I. | 67 |
| Graduate Student Paper Competition: ADSA Production Division Poster Competition | 68 |
| Meat Science and Muscle Biology | 68 |
| Nonruminant Nutrition: Feed Additives. | 70 |
| Physiology and Endocrinology: Immune Function and Health | 72 |
| Physiology and Endocrinology: Nutritional and Metabolic Effects on Growth, Reproduction and Lactation | 72 |
| Physiology and Endocrinology: The Hypothalamic-Somatotrophic Axis | 73 |
| Ruminant Nutrition: Carbohydrates – Dairy | 73 |
| Ruminant Nutrition: Fats – Dairy | 74 |
| Ruminant Nutrition: Methods, Models and Other. | 76 |
| Small Ruminant: Goats | 78 |
| Teaching/Undergraduate and Graduate Education: Teaching in the Animal Sciences. | 79 |

SYMPOSIUMS AND ORAL SESSIONS

| | |
|--|----|
| Animal Health I | 79 |
| SYMPOSIUM: Beef Species: The Evolution of Beef Cattle Genetic Evaluation. | 80 |
| Breeding and Genetics: Current Issues in Dairy Cattle Breeding | 80 |
| Dairy Foods: Dairy Food Chemistry and Microbiology. | 81 |
| SYMPOSIUM: ESS Program: Horse Genome Toolbox for Animal Science Applications | 81 |
| SYMPOSIUM: Extension Education: Has the Land-Grant College Left the Farm?. | 82 |
| SYMPOSIUM: Forages and Pastures: Fiber Fermentation: Influence of Supplemental Nonstructural Carbohydrates. | 82 |
| Graduate Student Paper Competition: ADSA Dairy Foods | 82 |
| Graduate Student Paper Competition: ADSA Production Division | 83 |
| Graduate Student Paper Competition: ADSA Southern Section. | 83 |
| SYMPOSIUM: Meat Science and Muscle Biology: Meat Quality: Regulation of Intramuscular Fat Deposition | 84 |
| SYMPOSIUM: Nonruminant Nutrition: Mineral Absorption: What is Known?. | 84 |
| Physiology and Endocrinology: Nutrition and Growth, Reproductive and Lactational Performance. | 84 |
| Production, Management and the Environment: Measuring and Evaluating Environmental Stress | 85 |
| Ruminant Nutrition: Forages. | 86 |
| Ruminant Nutrition: Minerals and Vitamins | 86 |
| ADSA-SAD Undergraduate Competition: Dairy Foods. | 87 |
| Animal Health II. | 87 |
| Graduate Student Paper Competition: ADSA-ASAS Northeast Section | 88 |
| ADSA-SAD Undergraduate Competition: Dairy Production | 88 |
| SYMPOSIUM: Dairy Foods: Advances in Low Fat Cheese Research | 89 |
| FASS Ag Guide Revision Workshop. | 89 |
| SYMPOSIUM: ADSA Southern Section Symposium: Responding to Hot Topics in Dairy Management. | 90 |

Scientific
TOC

| | |
|---|----|
| SYMPOSIUM: ALPHARMA Beef Cattle Nutrition and Beef Species Joint Symposium: | |
| Producing Quality Beef in a Bio-Based Economy | 90 |
| Animal Health III | 90 |
| SYMPOSIUM: ASAS Cell Biology: The Role of MicroRNA on Cell Function | 91 |
| SYMPOSIUM: Bioethics: Value of Bioethics Leadership for Food Animal Agriculture | 91 |
| SYMPOSIUM: Breeding and Genetics: Training of Future Animal Breeders | 92 |
| Companion Animals: Comparative Animal Biology | 92 |
| Forages and Pastures I. | 93 |
| Nonruminant Nutrition: Mineral | 93 |
| Nonruminant Nutrition: Protein and Amino Acids | 94 |
| Ruminant Nutrition: Growing Youngstock, Calves, and Heifers | 95 |
| SYMPOSIUM: Ruminant Nutrition and Production, Management & Environment Joint Symposium: | |
| Designing Field Studies to Evaluate Nutrition Effects on Production, Reproduction and Health of Dairy Cows | 95 |
| SYMPOSIUM: Small Ruminant: The US Goat Meat Industry and Recent Sheep and Goat Activities at the National Research Council of The National Academies | 96 |
| ADSA-SAD Undergraduate Competition: Original Research | 96 |
| Companion Animals: Graduate Student Competition - Companion and Exotic Animal Biology | 97 |

Wednesday, July 9

POSTER PRESENTATIONS

| | |
|---|-----|
| Animal Health: Immunology | 97 |
| Beef Species | 98 |
| Breeding and Genetics II | 99 |
| Companion Animals: Companion and Exotic Animal Biology | 100 |
| Dairy Foods: Milk, Dairy Food Chemistry, and Microbiology | 101 |
| Forages and Pastures II | 102 |
| Nonruminant Nutrition: Carbohydrate and Lipids | 103 |
| Physiology and Endocrinology: Gestation and Lactation Physiology | 105 |
| Physiology and Endocrinology: Hormonal Control of the Estrous Cycle | 105 |
| Production, Management and the Environment: Nutrient and Animal Management | 107 |
| Ruminant Nutrition: Management and Miscellaneous Additives – Dairy | 108 |
| Ruminant Nutrition: Proteins and Amino Acids – Beef, Sheep and Misc Ruminants | 110 |
| Ruminant Nutrition: Rumen Fermentation and Miscellaneous Additives – Beef | 110 |
| Swine Species | 113 |

SYMPOSIA AND ORAL SESSIONS

| | |
|---|-----|
| ADSA Foundation Scholar Lecture: Dairy Foods. | 114 |
| Animal Behavior and Well-Being: Swine. | 114 |
| Animal Health IV | 114 |
| SYMPOSIUM: Bioethics: How Do We Integrate Bioethics into Our Food Animal System? | 115 |
| SYMPOSIUM: Breeding and Genetics: Genome-Wide Selection | 116 |
| SYMPOSIUM: Food Safety: Assuring Food Safety in a Globalized Market | 116 |
| SYMPOSIUM: Forages and Pastures: Forage-Based Systems for Beef and Dairy Cattle Production: | |
| Regional Challenges and Opportunities. | 116 |
| Growth and Development: Historical Perspective and Future Direction | 117 |
| Horse Species I | 117 |
| Meat Science and Muscle Biology: Measuring and Manipulating Pork Quality | 118 |
| Nonruminant Nutrition: Past and Future of Nonruminant Nutrition | 118 |

| | |
|--|-----|
| SYMPOSIUM: Physiology and Endocrinology: Emerging Concepts on Dietary Components that Influence the Physiology and Endocrinology of Domestic Farm Animals | 119 |
| Production, Management and the Environment: Nutrient Management and the Environment. | 119 |
| Production, Management and the Environment: Young Stock, Environment and Management | 120 |
| Ruminant Nutrition: Fats and Fatty Acids | 120 |
| Ruminant Nutrition: Rumen Fermentation and Microbiology | 121 |
| Small Ruminant: Goats and Sheep | 122 |
| Swine Species | 122 |
| SYMPOSIUM: Teaching/Undergraduate and Graduate Education: The Changing Student and Influence of Technology on Learning. | 123 |
| Danisco International Dairy Science Award Lecture | 123 |
| Nonruminant Nutrition: Feed Additives I | 124 |
| Physiology and Endocrinology: Effects of Environment and Handling on Performance | 124 |
| ADSA Foundation Scholar Lecture: Production | 124 |
| Animal Behavior and Well-Being: Livestock: Swine and Sheep. | 125 |
| Animal Health V. | 125 |
| SYMPOSIUM: ARPAS Symposium: Livestock Pharmaceuticals: The Past, The Present, The... | 126 |
| SYMPOSIUM: ASAS Graduate Student Symposium: Academia, Industry, Government, or None of the Above: Graduation is Coming, What Next? | 126 |
| Breeding and Genetics: Applications of Genomic Analysis | 127 |
| SYMPOSIUM: Companion Animals: Perceptions and Implications of Companion Animals in Research and Teaching – Domestically and Globally | 127 |
| SYMPOSIUM: Dairy Foods: Changes and Challenges of Probiotics in Dairy Products. | 128 |
| SYMPOSIUM: Extension Education: From 40 Acres and a Mule to Today: Historical Perspective of Extension Programming | 128 |
| Forages and Pastures II | 129 |
| Horse Species II | 129 |
| Lactation Biology I | 130 |
| Meat Science and Muscle Biology: Beef Quality. | 131 |
| SYMPOSIUM: Nonruminant Nutrition: Oxidative Stress and the Use of Antioxidants for Nonruminant Animals | 131 |
| Physiology and Endocrinology: The Physiology of Gestation and the Post-Partum Interval | 132 |
| Production, Management, and the Environment: Disease, Management and Environment | 132 |
| SYMPOSIUM: Ruminant Nutrition: Glycerin as a Feed for Ruminants. | 133 |
| Small Ruminant: Sheep | 133 |
| Teaching/Undergraduate and Graduate Education: Teaching in the Animal Sciences. | 134 |

Thursday, July 10

POSTER PRESENTATIONS

| | |
|--|-----|
| Animal Behavior and Well-Being: Methodology. | 135 |
| Animal Health: General | 135 |
| Contemporary and Emerging Issues. | 136 |
| Dairy Foods: Dairy Products and Processing I | 136 |
| Forages and Pastures III. | 137 |
| Growth and Development: Nonruminant Species | 138 |
| Growth and Development: Ruminant Species. | 138 |
| Horse Species | 139 |
| International Animal Agriculture | 140 |
| Lactation Biology. | 140 |
| Nonruminant Nutrition: Mineral | 141 |

| | |
|--|-----|
| Nonruminant Nutrition: Protein and Amino Acids | 142 |
| Physiology and Endocrinology: Physiology of Heat Stress | 144 |
| Physiology and Endocrinology: Poultry and Swine Physiology | 144 |
| Physiology and Endocrinology: Spermatozoa, In Vitro Fertilization, and Embryo Transfer | 145 |
| Production, Management and the Environment: Calf, Young Stock and Stress Management | 145 |
| Ruminant Nutrition: Fats and Carbohydrates – Beef, Sheep, Miscellaneous Ruminants | 147 |
| Ruminant Nutrition: Minerals and Vitamins – Dairy | 148 |
| Ruminant Nutrition: Proteins and Amino Acids – Dairy | 149 |
| Small Ruminant: Sheep | 150 |

OTHER EVENTS

| | |
|---------------------------------|-----|
| ADSA Business Meeting. | 152 |
| ASAS Business Meeting | 152 |

SYMPOSIUMS AND ORAL SESSIONS

| | |
|--|-----|
| Dairy Foods: Dairy Products and Processing II. | 152 |
| SYMPOSIUM: The DC Connection: Science Policy, Research Support, and the Professional Animal Scientist | 152 |
| SYMPOSIUM: Animal Behavior and Well-Being: Animal Welfare Standards – Who Decides and How? | 153 |
| Breeding and Genetics: Computational Issues in Genomic Analysis | 153 |
| Breeding and Genetics: Current Issues in Swine Breeding | 154 |
| Dairy Foods: Cheese II | 154 |
| Food Safety: Centennial Presentations | 155 |
| Forages and Pastures: Centennial Presentations | 155 |
| Horse Species III. | 155 |
| Lactation Biology III | 155 |
| SYMPOSIUM: Meat Science and Muscle Biology: Postmortem Changes in Myofibrillar Protein and the Associated Contribution to Meat Quality. | 156 |
| SYMPOSIUM: Mixed Models Workshop: Session 1 | 156 |
| Nonruminant Nutrition: Distillers Grains for Swine. | 156 |
| Physiology and Endocrinology: Enhancing Reproductive Efficiency. | 157 |
| Physiology and Endocrinology: Health and Immunology | 157 |
| Ruminant Nutrition: Carbohydrate Byproducts – Dairy | 158 |
| Ruminant Nutrition: Nitrogen Sources and Utilization | 158 |
| SYMPOSIUM: Swine Species: Intestinal Barrier Function | 159 |
| Forages and Pastures III. | 159 |
| SYMPOSIUM: ADSA Production Division Symposium: Dairy Replacement Heifers: Cost-Effective Strategies from Weaning to Calving | 159 |
| Animal Health VI | 160 |
| Breeding and Genetics: Breeding for Milk Quality and Test-Day Model Applications | 160 |
| Breeding and Genetics: Current Issues in Beef Cattle Breeding | 161 |
| SYMPOSIUM: Companion Animals: Exotic Animal Nutrition | 161 |
| SYMPOSIUM: Contemporary and Emerging Issues: Healthfulness of Dairy and Meat Products | 162 |
| SYMPOSIUM: Dairy Foods: Emerging Nonthermal Food Processing Technologies → Their Potential in Dairy Systems | 162 |
| Extension Education: All Species | 163 |
| Growth and Development: General Topics | 163 |
| SYMPOSIUM: International Animal Agriculture: Welfare in Animal Production, from Science to Practice | 164 |
| Lactation Biology III | 164 |
| Meat Science and Muscle Biology: Meat Science Research: Past, Present, and Future | 165 |

| | |
|---|-----|
| Nonruminant Nutrition: Energy Utilization | 166 |
| Nonruminant Nutrition: Feed Additives II. | 166 |
| Physiology and Endocrinology: Synchronization of Estrus in Cattle | 167 |
| Ruminant Nutrition: Protein and Amino Acids – Beef | 168 |
| Ruminant Nutrition: Rumen Fermentation Modifiers | 168 |

Friday, July 11

SYMPOSIA AND ORAL SESSIONS

| | |
|---|-----|
| Animal Behavior and Well-Being: Beef and Dairy Cattle. | 169 |
| Breeding and Genetics: Dairy, Sheep & Goat – Crossbreeding, Inbreeding, and Breed Conservation. | 170 |
| SYMPOSIUM: Growth and Development: Symposium: The Molecular Basis for Feed Efficiency | 171 |
| SYMPOSIUM: Mixed Models Workshop: Session 2 | 171 |
| Nonruminant Nutrition: Protein and Feed Additives. | 171 |
| SYMPOSIUM: Nonruminant Nutrition: Energy Systems and Alternative Energy Ingredients for Swine | 172 |
| Ruminant Nutrition: Acidosis, DCAD, and Acid-Base Metabolism | 172 |
| Ruminant Nutrition: Energy and Carbohydrate Byproducts – Beef. | 173 |
| SYMPOSIUM: Triennial Lactation Symposium joint with Lactation Biology: | |
| 9th ASAS-EAAP International Workshop on the Biology of Lactation in Farm Animals. | 174 |
| Ruminant Nutrition: Feeding Behavior, Chewing, and Digestibility. | 174 |
| SYMPOSIUM: Triennial Lactation Symposium joint with Lactation Biology: | |
| 9th ASAS-EAAP International Workshop on the Biology of Lactation in Farm Animals. | 175 |

ADSA Dairy Foods Division Schedule of Events

Monday, July 7

5:00 pm – 6:00 pm ADSA Dairy Foods Division Council Meeting, Convention Center Room 104

Tuesday, July 8

7:30 am – 9:30 am Posters: Cheese I, Convention Center Exhibit Hall CDE (page 65)

9:30 am – 12:00 pm Graduate Student Paper Competition: National ADSA Dairy Foods Division, Convention Center Room 121 (page 83)

9:30 am – 12:00 pm Dairy Food Chemistry and Microbiology, Convention Center Room 120 (page 81)

1:30 pm – 5:00 pm SYMPOSIUM: Advances in Low Fat Cheese Research (Sponsored by DMI Inc.), Convention Center Room 121 (page 89)

Wednesday, July 9

7:30 am – 9:30 am Posters: Milk, Dairy Food Chemistry and Microbiology, Convention Center Exhibit Hall CDE (page 101)

9:30 am – 10:30 am ADSA Foundation Scholar Lecture – Dairy Foods, Convention Center Room 121 (page 114)

10:30 am – 11:30 am Danisco International Dairy Science Award Lecture, Convention Center Room 121 (page 123)

11:30 am – 12:30 pm ADSA Dairy Foods Division Business Meeting, Convention Center Room 121

12:30 pm – 2:00 pm ADSA DF Division Milk Proteins & Enzymes Committee, Convention Center Room 202

12:30 pm – 2:00 pm ADSA Dairy Foods Program Planning Meeting, Convention Center Room 120

2:00 pm – 5:00 pm SYMPOSIUM: Changes and Challenges of Probiotics in Dairy Products, Convention Center Room 121 (page 128)

Thursday, July 10

7:30 am – 9:30 am Posters: Dairy Products and Processing I, Convention Center Exhibit Hall CDE (page 136)

9:30 am – 10:00 am ADSA Business Meeting, Convention Center Room 206 (page 152)

10:00 am – 12:30 pm Dairy Products and Processing II, Convention Center Room 121 (page 152)

10:30 am – 12:00 pm Cheese II, Convention Center Room 120 (page 154)

2:00 pm – 5:00 pm SYMPOSIUM: Emerging Nonthermal Food Processing Technologies – Their Potential in Dairy Systems, Convention Center Room 121 (page 162)

ASAS Centennial Presentations Schedule

Tuesday, July 8

| | | |
|---------|-----|--|
| 2:00 pm | 146 | Development and current issues of a corn-based beef industry. L. R. Corah, Certified Angus Beef LLC (500 Ballroom) |
| 3:40 pm | 167 | Role of industry leaders in addressing bioethical issues. J. W. Lauderdale, Lauderdale Enterprises Inc. (Room 101–102) |
| 4:30 pm | 151 | Using grain and biomass for feed versus fuel. J. Lawrence, Iowa State University (500 Ballroom) |

Wednesday, July 9

| | | |
|----------|-----|---|
| 9:30 am | 282 | Historical review and future outlook of equine reproductive technology. D. Sharp, University of Florida (Room 104) |
| 9:30 am | 362 | Animal science teaching: A century of excellence. D. S. Buchanan, North Dakota State University (Room 120) |
| 9:30 am | 345 | Impact of animal science research on US goat production and predictions for the future. T. Sahlu, American Institute for Goat Research, Langston University (Room 205) |
| 9:35 am | 240 | Animal behavior and well-being: What does the future hold? A. K. Johnson, Iowa State University (Room 203) |
| 9:35 am | 255 | History and future perspectives of bioethics in food animal agriculture. W. R. Stricklin, University of Maryland (Room 101–102) |
| 9:40 am | 274 | The history of growth biology research – A reflection on the episodic nature of science. T. Etherton, Penn State University (Sagamore Ballroom 5) |
| 9:40 am | 298 | Landmark studies in swine nutrition during the past century. G. L. Cromwell, University of Kentucky (Room 105–106) |
| 10:20 am | 275 | Future needs and directions in animal growth and development research. M. A. Mirando, Cooperative State Research, Education, and Extension Service, USDA (Sagamore Ballroom 5) |
| 10:35 am | 299 | Nonruminant nutrition – A proud past but uncertain future. R. A. Easter, University of Illinois (Room 105–106) |
| 2:00 pm | 428 | History of extension. J. Paterson, Montana State University, Bozeman, MT. (Room 109–110) |
| 2:00 pm | 441 | Historical review and future outlook of equine nutrition. H. Hintz, Cornell University (Room 104) |
| 2:00 pm | 493 | Impacts of animal science research on U.S. sheep production and predictions for the future. C. J. Lupton, Texas AgriLife Research (Room 107–108) |
| 2:05 pm | 377 | Animal behavior as a discipline within the American Society of Animal Science: One hundred years of change and promise. W. R. Stricklin, University of Maryland (Room 101–102) |
| 2:05 pm | 414 | Evolution of companion animals – A perception shift. L. P. Case, University of Illinois and AutumnGold Consulting (Room 105–106) |
| 2:30 pm | 429 | Evolution of delivery methods. M. Hutjens, University of Illinois (Room 109–110) |
| 3:00 pm | 430 | From 40 acres and a mule to today: Historical perspective of extension programming: HorseQuest. E. A. Greene, University of Vermont (Room 109–110) |
| 3:20 pm | 431 | DAIReXNET – Method of delivering extension programming for the dairy industry which transcends traditional methods of information delivery and state/regional borders. D. M. Amaral-Phillips, University of Kentucky (Room 109–110) |
| 3:40 pm | 432 | Beef Cattle Clearinghouse: An eXtension Website. R. Rasby, University of Nebraska (Room 109–110) |
| 4:00 pm | 433 | Pork Information Gateway in eXtension. D. J. Meisinger, US Pork Center of Excellence, Iowa State University (Room 109–110) |
| 5:00 pm | 422 | The future of teaching and research in companion animal biology in departments of animal sciences. J. McNamara, Washington State University (Room 105–106) |

Thursday, July 10

| | | |
|----------|-----|--|
| 10:30 am | 544 | Historical perspective on the advances in forage research. J. Burns, USDA-ARS and North Carolina State University (Room 104) |
| 10:30 am | 542 | Developments and future outlook for preharvest food safety. S. P. Oliver, The University of Tennessee (Room 204) |
| 10:30 am | 546 | History and future outlook of equine science teaching programs. C. H. Wood, University of Kentucky (Sagamore Ballroom 2) |
| 10:30 am | 552 | Historical perspective on lactation biology. R. S. Kensinger, Oklahoma State University (Sagamore Ballroom 6) |
| 10:30 am | 566 | Future research in physiology and endocrinology. G. E. Seidel, Colorado State University (Room 205) |
| 11:00 am | 545 | Research and extension needs in forage utilization in the future. F. M. Rouquette Jr., Texas AgriLife Research, Texas A&M System (Room 104) |
| 11:15 am | 543 | Developments and future outlook for postharvest food safety. J. Sofos, Colorado State University (Room 204) |
| 11:15 am | 553 | Lactation biology for the 21st century. J. J. Loor, University of Illinois (Sagamore Ballroom 6) |
| 2:00 pm | 605 | The promise of proteomics in animal science. J. D. Lippolis, National Animal Disease Center, USDA-ARS (Sagamore Ballroom 1) |
| 2:00 pm | 622 | Animal breeding and the <i>Journal of Animal Science</i> : A century of co-evolution. W. Hohenboken, Virginia Polytechnic Institute and State University and Oregon State University (Sagamore Ballroom 4) |
| 2:00 pm | 688 | A century of pioneers and progress in meat science leads to new frontiers. D. H. Beermann, University of Nebraska (Room 120) |
| 2:00 pm | 713 | Development of cattle estrus and breeding management. J. W. Lauderdale, Lauderdale Enterprises Inc. (Room 205) |
| 2:05 pm | 672 | The impact of current global challenges in the animal agricultural industry. A. Tewolde, Inter American Institute for Cooperation on Agriculture – IICA (Room 101–102) |
| 3:15 pm | 692 | Current and future meat science research needs. T. H. Powell, American Meat Science Association (Room 120) |
| 3:30 pm | 608 | Contributions in the <i>Journal of Animal Science</i> to understanding cattle metabolic and digestive disorders. M. L. Galyeon, Texas Tech University (Sagamore Ballroom 1) |
| 3:45 pm | 627 | Future needs in animal breeding. R. D. Green, Pfizer Animal Genetics (Sagamore Ballroom 4) |

Friday, July 11

| | | |
|---------|-----|---|
| 8:30 am | 795 | Discovery and application of energetic principles to feeding systems for beef cattle. C. Ferrell, USDA, ARS, US Meat Animal Research Center (Sagamore Ballroom 4) |
| 9:00 am | 796 | Discovery and application of energetic principles to feeding systems for beef cattle: Use of dynamic models. J. W. Oltjen, University of California (Sagamore Ballroom 4) |

Tuesday, July 8
POSTER PRESENTATIONS
Animal Health
Mastitis
Exhibit Hall CDE

- T1 Dairy herd size and herd expansion are related to dairy cow mortality in Southeastern US dairy herds. G. W. Rogers¹, J. B. Cooper*¹, and J. S. Clay², ¹The University of Tennessee, Knoxville, ²Dairy Records Management Systems, Raleigh, NC.
- T2 Genetic polymorphism of lactoferrin gene and association with mastitis in Holstein cows. J. B. Cheng¹, J. Q. Wang*¹, D. P. Bu¹, G. L. Liu¹, C. G. Zhang^{1,2}, X. L. Dong^{1,2}, H. Y. Wei¹, L. Y. Zhou¹, and K. L. Liu¹, ¹State Key Laboratory of Animal Nutrition, Institute of Animal Science, Chinese Academy of Agricultural Sciences, Beijing, China, ²College of Animal Science and Technology of Yangzhou University, Yangzhou, China.
- T3 Photonic plasmid stability of transformed *Salmonella typhimurium* using Stanford Photonic imaging and three plasmid types. K. Moulton*¹, P. Ryan¹, D. Moore¹, S. Laird¹, J. Curbelo¹, D. Lay², and S. Willard¹, ¹Mississippi State University, Mississippi State, ²USDA-ARS, Livestock Behavior Research Unit, West Lafayette, IN.
- T4 Seasonal variation of mortality rate in dairy cows of the Po Valley (Italy). A retrospective study from 2001 to 2006. A. Vitali¹, L. Bertocchi², N. Lacetera*¹, U. Bernabucci¹, A. Cuteri¹, M. Guerini³, and A. Nardone¹, ¹Dipartimento di Produzioni Animali, Viterbo, Italy, ²Istituto Zooprofilattico Sperimentale Lombardia-Emilia Romagna, Brescia, Italy, ³Osservatorio Epidemiologico Veterinario Regione Lombardia, Brescia, Italy.
- T5 Monitoring body temperature of postpartum dairy cows using an intravaginal device. R. R. Peters¹, B. Erez*¹, L. A. Bornt¹, F. Siewerdt¹, and M. E. Iager², ¹University of Maryland, College Park, ²Mid-Maryland Dairy Veterinarians, Hagerstown, MD.
- T6 A data exchange format and national database for producer-recorded health event data from on-farm management software. J. B. Cole, D. J. Null*, and L. R. Bacheller, USDA-ARS-BA-ANRI-AIPL, Beltsville, MD.
- T7 Dexamethasone administration increased bovine lymphocyte clock gene expression *in vitro* and *in vivo*. S. S. Pozzo*, M. K. Rankin, and T. F. Gressley, University of Delaware, Newark.
- T8 Negative energy balance (NEB) alters neutrophil (PMN) gene expression in response to a *Streptococcus uberis* (*S. uberis*) mastitis challenge in lactating dairy cows. K. M. Moyes*, J. K. Drackley, D. E. Morin, R. E. Everts, H. A. Lewin, and J. J. Loor, University of Illinois, Urbana.
- T9 Comparison of minimum inhibitory concentrations of *Staphylococcus aureus* obtained from clinical and subclinical cases of mastitis. L. Oliveira*¹, P. Ruegg¹, H. Langoni², and M. D. Apparao¹, ¹University of Wisconsin, Madison, ²FMVZ - UNESP, Botucatu, SP, Brazil.
- T10 Comparison of in-vitro MIC's of gram positive pathogens isolated from cases of subclinical and clinical mastitis. M. D. Apparao¹, P. L. Ruegg*¹, A. Lago², S. Godden², R. Bey², R. Dingwell³, and K. Leslie³, ¹University of Wisconsin, Madison, ²University of Minnesota, St. Paul, ³University of Guelph, Guelph, ON, Canada.
- T11 Nystatin, pathogen-associated molecular patterns and bovine neutrophil activation. M. Worku* and A. Morris, North Carolina A&T State University, Greensboro.
- T12 Macrolide and lincosamide resistance in Staphylococci and Streptococci isolated from quarters with persistent subclinical mastitis. M. D. Apparao, P. L. Ruegg*, and H. Khatib, University of Wisconsin, Madison.

Breeding and Genetics I
Exhibit Hall CDE

- T13 Using logistic regression model to analyse some environmental factors affecting mastitis incidence of primiparous Iranian Holsteins. H. Farhangfar*, A. Abedini, H. Naeemipour, M. R. Asghari, and M. H. Fathi Nasri, Birjand University, Birjand, Iran.
- T14 Genetic parameters estimation of somatic cell score in Iranian Holstein heifers using a random regression test day model. H. Farhangfar*¹, A. Abedini¹, H. Naeemipour¹, M. Alipanah², K. Shojaeian², and B. Mohammad Nazari³, ¹Birjand University, Birjand, Iran, ²Zabol University, Zabol, Iran, ³Animal Breeding Centre, Karaj, Iran.
- T15 Genetic parameters and trend estimation for milk and fat yields and fat percentage for primiparous Holstein population of Golestan and Mazandaran provinces of Iran using a univariate animal model. H. Naeemipour*¹, H. Farhangfar¹, I. Tahmasbi², and M. Bashtani¹, ¹Birjand University, Birjand, Iran, ²Zabol University, Zabol, Iran.
- T16 Genetic relationships between linear type traits, somatic cell score and longevity in Holstein cows of Iran. M. R. Bakhtiarzadeh*, M. Moradi Shahr Babak, and A. Pakdel, University of Tehran, Tehran, Iran.

- T17 Breed composition of the United States dairy cattle herd. R. L. Powell*, H. D. Norman, and J. L. Hutchison, *Animal Improvement Programs Laboratory, ARS, USDA, Beltsville, MD.*
- T18 Reproductive trends of dairy herds in the United States. H. D. Norman, J. R. Wright, S. M. Hubbard*, M. T. Kuhn, and R. H. Miller, *Animal Improvement Programs Laboratory, ARS, USDA, Beltsville, MD.*
- T19 Impact of selection for increased daughter fertility on productive life and culling for reproduction. H. D. Norman, J. R. Wright*, and R. H. Miller, *Animal Improvement Programs Laboratory, ARS, USDA, Beltsville, MD.*
- T20 Modeling nuisance variables for phenotypic evaluation of bull fertility. M. T. Kuhn*, J. L. Hutchison, and H. D. Norman, *USDA-ARS-AIPL, Beltsville, MD.*
- T21 Factors that affect abortion frequency in dairy herds in the United States. R. H. Miller*, M. T. Kuhn, H. D. Norman, and J. R. Wright, *Animal Improvement Programs Laboratory, ARS, USDA, Beltsville, MD.*
- T22 Heritability of dairy cow mortality and relationships between mortality and sire genetic evaluations for yield, somatic cell score, productive life and daughter pregnancy rate. G. W. Rogers*¹, J. B. Cooper¹, and J. S. Clay², ¹*The University of Tennessee, Knoxville,* ²*Dairy Records Management Systems, Raleigh, NC.*
- T23 Lactation patterns for dairy cattle in a multibreed dairy population in Central Thailand. A. Seangjun¹, S. Koonawootrittriron¹, and M. A. Elzo*², ¹*Kasetsart University, Bangkok, Thailand,* ²*University of Florida, Gainesville.*
- T24 Relationships between reproductive traits of heifers and cows and yield traits for Holsteins in Japan. H. Abe*, Y. Masuda, and M. Suzuki, *Obihiro University of A & VM, Obihiro, Japan.*
- T25 Genetic aspects of the somatic cells count in dairy buffaloes reared in Sao Paulo state, Brazil. H. Tonhati*^{1,2}, G. M. Sanches¹, M. F. Ceron Munoz¹, L. G. de Albuquerque^{1,2}, R. R. A. B. Borquis^{1,3}, R. Sesana^{1,3}, and L. El Faro¹, ¹*Sao Paulo University, Jaboticabal, Sao Paulo, Brazil,* ²*Conselho Nacional de Desenvolvimento Científico e Tecnológico, Brasília, DF, Brazil,* ³*Fundacao de Amparo a Pesquisa do Estado de Sao Paulo, Sao Paulo, Brazil.*
- T26 Computing options for multiple-trait test-day random-regression models. I. Aguilar*^{1,2}, S. Tsuruta¹, and I. Misztal¹, ¹*University of Georgia, Athens, GA,* ²*Instituto Nacional de Investigación Agropecuaria, Las Brujas, Uruguay.*
- T27 One predominant and preeminent common ancestor in Bell family. R. D. Shanks* and K. Boesche, *University of Illinois, Urbana.*
- T28 Heritability of genetic tolerance to Johne's disease. R. Zanella*¹, M. Settles¹, T. Fyock², R. Whitlock², Y. Schukken³, J. Van Kessel⁵, J. Karns⁵, E. Hoving⁴, J. Smith⁶, C. Van Tassel⁵, C. Gaskins¹, and H. Neibergs¹, ¹*Washington State University, Pullman,* ²*University of Pennsylvania, Kennett Square,* ³*Cornell University, Ithaca, NY,* ⁴*Penn State University, University Park,* ⁵*USDA, ARS, Beltsville, MD,* ⁶*University of Vermont, Burlington, VT.*
- T29 Detection of polymorphism in bovine polymeric immunoglobulin receptor gene promoter region and association with milk IgA and IgM concentration. C. G. Zhang^{1,2}, J. Q. Wang*¹, D. P. Bu¹, G. L. Liu¹, J. B. Cheng¹, X. L. Dong^{1,2}, H. Y. Wei¹, L. Y. Zhou¹, G. Q. Zhao², and K. L. Liu¹, ¹*State Key Laboratory of Animal Nutrition, Institute of Animal Science, Chinese Academy of Agricultural Sciences, Beijing, China,* ²*Yangzhou University, Yangzhou, China.*
- T30 Effect of marker-assisted preselection in Japanese dairy population. H. Ohmiya* and M. Suzuki, *Obihiro University of Agriculture & Veterinary Medicine, Obihiro, Hokkaido, Japan.*
- T31 Optimized measured genotype analysis for genome-wide quantitative trait loci mapping using dense SNP chips. J. R. O'Connell*, *University of Maryland School of Medicine.*
- T32 Effect of varying degree of relatedness in family designs on estimation of IBD probability and other parameters in QTL mapping based on variance component analysis. G. Freyer² and N. Vukasinovic*¹, ¹*Newsham Choice Genetics, Saint Louis, MO,* ²*Research Institute for the Biology of Farm Animals, Dummerstorf, Germany.*
- T33 Spermatozoal transcriptome profile as marker for bull fertility and sperm motility: A potential tool to evaluate semen quality. N. Bissonnette*^{1,2}, J.-P. Lévesque-Sergerie^{1,2}, and G. Boissonneault², ¹*Agriculture and Agri-Food Canada, Sherbrooke, Québec, Canada,* ²*University of Sherbrooke, Sherbrooke, Québec, Canada.*
- T34 Molecular characterization of the bovine DDX3Y gene. W.-S. Liu*¹, A. Wang², Y. Yang¹, E. Landrito³, and H. Yasue⁴, ¹*The Pennsylvania State University, University Park,* ²*Virginia Polytechnic Institute and State University, Blacksburg,* ³*University of Nevada, Reno, NV,* ⁴*National Institute of Agrobiological Sciences, Tsukuba, Ibaraki, Japan.*
- T35 A gene frequency model to map QTL using bayesian inference. W. He*¹, R. L. Fernando¹, J. C. M. Dekkers¹, and D. Gianola², ¹*Iowa State University, Ames,* ²*University of Wisconsin, Madison.*

- T36 The study of gene delivery system in avian species using human adenoviral vector. D. R. Bae*, J. H. Shin, J. M. Reddish, J. D. Latschaw, M. P. Wick, and K. Lee, *The Ohio State University, Columbus*.
- T37 The use of machine learning techniques for analysis of high-dimension gene expression data sets. K. R. Robbins, W. Zhang, J. K. Bertrand, and R. Rekaya*, *University of Georgia, Athens*.

Dairy Foods Cheese I Exhibit Hall CDE

- T38 Sensory and microbiological properties of cheddar cheese made with different fat content. M. A. Drake¹, C. J. Brighton², D. J. McMahon², and J. R. Broadbent*², ¹*North Carolina State University, Raleigh*, ²*Utah State University, Logan*.
- T39 Comparison of Hispanic cheeses from US and country of origin manufacturers. L. A. Jiménez-Maroto*, A. López-Hernández, and S. A. Rankin, *University of Wisconsin, Madison*.
- T40 Evaluation of mineral compositions in reduced-fat and full-fat caprine milks and their Cheddar-type cheeses. W. Noura*, T. H. Terrill, and Y. W. Park, *Fort Valley State University, Fort Valley, GA*.
- T41 The effect of aging on low, reduced, and full fat cheddar cheese on texture. N. R. Rogers*, M. A. Drake, and E. A. Foegeding, *North Carolina State University, Raleigh*.
- T42 Survey of the fatty acid profile including *cis*-9, *trans*-11 conjugated linoleic acid of some Oklahoma cow cheeses. G. Davila El Rassi* and V. Banskalieva, *Oklahoma State University, Stillwater*.
- T43 Mapping consumer preferences for mild cheddar cheese. S. L. Drake*¹, P. D. Gerard², and M. A. Drake¹, ¹*North Carolina State University, Raleigh*, ²*Clemson University, Clemson, SC*.
- T44 Manufacture of cheddar cheese with added sodium gluconate. C. Phadungath*¹ and L. E. Metzger², ¹*University of Minnesota, St Paul*, ²*South Dakota State University, Brookings*.
- T45 Changes in residual sugar and water-soluble organic acids during ripening of Cheddar cheese with added sodium gluconate. C. Phadungath*¹ and L. E. Metzger², ¹*University of Minnesota, St Paul*, ²*South Dakota State University, Brookings*.
- T46 Flavor chemistry of cheddar cheeses with varying fat contents. R. E. Miracle*¹, D. J. McMahon², and M. A. Drake¹, ¹*North Carolina State University, Raleigh*, ²*Utah State University, Logan*.
- T47 Development of cholesterol-reduced block type process cheese made by crosslinked β -cyclodextrin. S. Y. Kim, E. K. Hong, and H. S. Kwak*, *Sejong University, Seoul, Korea*.
- T48 Physicochemical and rheological characterization of cream cheese made from freeze-dried milk powder. S. H. Kim, S. Lee, and H. S. Kwak*, *Sejong University, Seoul, Korea*.
- T49 Effects of manufacturing parameters on the chemical, functional, and rheological properties of Queso Chihuahua. D. L. Van Hekken*, M. H. Tunick, R. Kwoczak, J. J. Shieh, and P. M. Tomasula, *USDA-ARS, ERRC, Wyndmoor, PA*.
- T50 Characterization of organic acid and carbohydrate profiles of commercial Swiss cheese samples. H. Zhang* and L. E. Metzger, *South Dakota State University, Brookings*.
- T51 Surface roughness affects the formation of calcium lactate crystals on Cheddar cheese. P. Rajbhandari*, C. Ogg, and P. S. Kindstedt, *University of Vermont, Burlington*.
- T52 Influence of native casein concentrates on process cheese texture. P. Salunke* and L. E. Metzger, *South Dakota State University, Brookings*.
- T53 The effect of culture combinations on swiss cheese flavor quality. N. A. Kocaoglu-Vurma*¹, A. Eliardi¹, M. A. Drake², L. E. Rodriguez-Saona¹, and W. J. Harper¹, ¹*The Ohio State University, Columbus*, ²*North Carolina State University, Raleigh*.
- T54 Iodine content in sheep and goat cheese produced in Sardinia (Italy). G. Pulina*^{1,3}, F. Aghini-Lombardi², M. Frigeri², G. Battacone¹, R. Rubattu¹, G. Garzella², L. Grasso², and A. Nudda¹, ¹*University of Sassari, Sassari, Italy*, ²*University of Pisa, Pisa, Italy*, ³*AGRIS Sardegna, Olmedo Loc. Bonassai, Sassari, Italy*.
- T55 Three-dimensional microscopy using stereoscopy applied to scanning electron microscopy imagery. M. Caccamo*¹, G. Impoco², L. Tuminello¹, and G. Licitra^{1,3}, ¹*CoRFiLaC, Regione Siciliana, Ragusa, Italy*, ²*IPLAB, Catania University, Catania, Italy*, ³*D.A.C.P.A., Catania University, Catania, Italy*.

- T56 Prediction of curd moisture content by near infrared light scattering over a range of stirring speed and cutting intensity during cheese-making. M. J. Mateo^{*1}, D. J. O'Callaghan¹, C. D. Everard¹, C. P. O'Donnell², C. C. Fagan², M. Castillo³, and F. A. Payne³, ¹Moorepark Food Research Centre, Teagasc, Fermoy, Cork Ireland, ²University College of Dublin, Dublin, Ireland, ³University of Kentucky, Lexington.
- T57 Effect of various starches on the properties of a processed Swiss-type cheese product. M. C. M. Soledad* and W. J. Harper, *The Ohio State University, Columbus.*
- T58 Influence of comminuting curd on curd particle size, moisture content and cohesiveness of 50%-reduced fat cheddar cheese. D. J. McMahon* and C. Brothersen, *Utah State University, Logan.*
- T59 Preparation of low fat fresh panela type cheese with ω -3 fatty acid. E. Paz-Gamboa^{*1}, M. Montero-Lagunes³, S. Cruz-Diaz¹, M. Esquivel-Vera¹, H. S. Garcia-Galindo², C. E. Martinez-Sánchez¹, and E. Herman-Lara¹, ¹Instituto Tecnológico de Tuxtepec, Tuxtepec, Mexico, ²Instituto Tecnológico de Veracruz, Veracruz, Mexico, ³Campo Experimental la Posta, Veracruz, Mexico.

Extension Education Exhibit Hall CDE

- T60 Management practices used in Alabama beef production I: Impact of herd size. W. F. Owsley*, J. B. Elmore, M. F. Elmore, L. A. Kriese-Anderson, W. C. Rutherford, S. V. Free, and L. S. Saunders, *Auburn University, Auburn, AL.*
- T61 Management practices used in Alabama beef production II: Impact of source of herd health information. W. F. Owsley, J. B. Elmore*, M. F. Elmore, L. A. Kriese-Anderson, W. C. Rutherford, S. V. Free, and L. S. Saunders, *Auburn University, Auburn, AL.*
- T62 Commercial cow and calf data in Alabama herds: 1988 to 2007. L. A. Kriese-Anderson^{*1} and M. F. Elmore², ¹Auburn University, Auburn, AL, ²Alabama Cooperative Extension System, Auburn, AL.
- T63 A single fleece test method improves premium wool traits in range sheep flock. T. Wuliji^{*1}, T. Borda², H. Glimp¹, L. Gome-Raya¹, and W. Rauw¹, ¹University of Nevada, Reno, ²Borda Ranch, Fernley, NV.
- T64 Minimum sampling requirement for prediction of hay forage quality from monoculture or mixed grass fields. R. S. Milliken¹, M. S. Gadberry², E. B. Kegley^{*3}, J. A. Jennings², and J. T. Richeson³, ¹University of Arkansas Division of Agriculture Cooperative Extension Service, Marshall, ²University of Arkansas Division of Agriculture Cooperative Extension Service, Little Rock, ³University of Arkansas Division of Agriculture, Fayetteville.
- T65 Demonstration of a formulation approach to include corn-milling co-products in lactating dairy rations. K. J. Machacek* and P. J. Kononoff, *University of Nebraska, Lincoln.*
- T66 The Virginia Phosphorus Feeding Incentive Program. C. C. Stallings*, K. F. Knowlton, R. E. James, M. D. Hanigan, B. G. Cox, J. L. Welsh, T. M. Horn, S. M. Puffenbarger, and M. C. Scott, *Virginia Polytechnic Institute and State University, Blacksburg.*
- T67 Financial performance of dairies in Florida and Georgia in 2006. L. O. Ely^{*1}, A. deVries², R. Giesy², M. Sowerby², B. Broadus², and C. Vann², ¹University of Georgia, Athens, ²University of Florida, Gainesville.
- T68 Organic dairy short course for ag professionals. D. G. Johnson^{*1}, J. M. Moynihan², M. J. Forbord³, and L. Paine⁴, ¹University of Minnesota, Morris, ²Minnesota Department of Agriculture, St Paul, MN, ³Sustainable Farming Association of Minnesota, Starbuck, MN, ⁴Wisconsin Department of Agriculture, Trade and Consumer Protection, Madison, WI.
- T69 Good dairy sanitation workshops in Central American countries. G. Pena^{*1}, M. West¹, D. Orellana², A. Young¹, and D. E. Diaz¹, ¹Utah State University, Logan, ²USDA-FAS, Washington, DC.
- T70 Spanish language training on proper milking techniques in the state of Utah. D. E. Diaz*, G. Pena, C. Israelson, J. Barnhill, and A. Young, *Utah State University, Logan.*

Food Safety Exhibit Hall CDE

- T71 Crisis communications: The dairy plan. K. E. Olson^{*1}, S. L. Stevens², and D. Pelzer², ¹KEO Consulting, Schaumburg, IL, ²Dairy Management, Inc, Rosemont, IL.
- T72 Determination of antibiotic residues in farm hens eggs. H. F. Ahmed^{*1}, I. M. Aman¹, and S. E. Zahran², ¹Kafr El-Sheikh University, Kafr El-Sheikh, Egypt, ²Animal Health Research Institute, Tanta, Egypt.

- T73 Intestinal microbial affects of yeast products on weaned and transport stressed pigs. S. Weedman^{*1,2}, M. Rostagno², J. Patterson¹, A. Kiess¹, and S. Eicher², ¹*Purdue University, West Lafayette, IN*, ²*USDA-ARS, West Lafayette, IN*.
- T74 Identification of risk factors associated with increased coliform counts in bulk milk. J. Pantoja*, C. Hulland, D. Reinemann, and P. Ruegg, *University of Wisconsin, Madison*.
- T75 Effects of distiller's grains and dry-rolled corn supplementation in steam-flaked corn grain-based diets on fecal shedding of *Escherichia coli* O157:H7 and *Salmonella*. M. E. Jacob*, J. S. Drouillard, D. G. Renter, J. T. Fox, and T. G. Nagaraja, *Kansas State University, Manhattan*.
- T76 Effects of the dicarboxylic acids malate and fumarate on *E. coli* O157:H7 and *Salmonella* Typhimurium populations in pure culture and mixed ruminal culture in *in vitro* fermentations. T. R. Callaway*, T. S. Edrington, R. C. Anderson, N. Krueger, and D. J. Nisbet, *ARS, Food and Feed Safety Research Unit, College Station, TX*.

Forages and Pastures I Exhibit Hall CDE

- T77 Estimating losses of dry matter from alfalfa-orchardgrass mixtures following rainfall events. W. K. Coblenz* and W. E. Jokela, *US Dairy Forage Research Center, Marshfield, WI*.
- T78 Influence of cutting time and swath type on intake, site, and ruminal metabolism of alfalfa hay. T. Shenkoru, H. Hussein, and T. Wuliji*, *University of Nevada, Reno*.
- T79 Plant maturity and genetic influences on *in vitro* NDF digestibility of alfalfa. A. Palmonari^{*1}, N. Brogna¹, G. Rossi¹, I. Fusaro², G. Biagi¹, and A. Formigoni¹, ¹*DIMORFIPA Università di Bologna, Ozzano dell'Emilia, Bologna, Italy*, ²*Dipartimento di Scienze Degli Alimenti Università di Teramo, Teramo, Italy*.
- T80 Effect of a lactic acid-*Lactobacillus* product and bale moisture on forage quality, and voluntary intake and digestibility of crabgrass hay by lambs. L. Hardin¹, A. Killion¹, J. Caldwell¹, K. Coffey^{*1}, D. Philipp¹, and W. Coblenz², ¹*University of Arkansas, Fayetteville*, ²*USDA-ARS, Marshfield, WI*.
- T81 Harvest management effects on Tifton-85 bermudagrass greenchop nutritive value. Y. C. Newman*, C. R. Staples, A. T. Adesogan, A. R. Blount, and C. Mackowiak, *University of Florida, Gainesville*.
- T82 Chemical composition and nutritive value of forage silages produced in the Italian Po Valley. S. Colombini^{*1}, L. Rapetti¹, N. Rizzi², P. Amodeo², G. Galassi¹, and G. M. Crovetto¹, ¹*University of Milan, Milan, Italy*, ²*Dairy Farmers Association of Lombardy, Crema, Italy*.
- T83 Nutritive value of sunflower silage associated with different by-products. R. H. de T. e Buschinelli de Goes^{*1}, A. C. Martinez², E. S. Miyagi³, C. O. de Abreu², R. de C. M. Tramontini², K. C. da S. Brabes¹, and E. R. de Oliveira¹, ¹*Universidade Federal da Grande Dourados, Dourados, MS, Brasil*, ²*Universidade Estadual de Maringá, Umuarama, PR, Brasil*, ³*Universidade Federal de Goiás, Goiânia, GO, Brasil*.
- T84 The use of hybrid or native corn byproducts for the manufacture of nutritional blocks or silages: A simulation model. J. M. Tapia-Gonzalez^{*1}, A. Tewolde-Medhin², W. E. Grant³, J. C. Martinez-González², H. Diaz-Solís⁴, A. Moreno-Valdéz⁵, O. D. Montañez-Valdez¹, and G. Rocha-Chavez¹, ¹*CUSUR, Univ de Guadalajara, Cd. Guzmán, Jalisco, México*, ²*Unidad Académica Multidisciplinaria Agronomía y Ciencias. UAT, Cd. Victoria, Tamaulipas, México*, ³*Texas A&M University, College Station*, ⁴*Área de Recursos Naturales, UAAAN, Saltillo Coahuila, México*, ⁵*Área de Recursos Naturales, Instituto Tecnológico de Ciudad Victoria, Cd. Victoria, Tamaulipas, México*.
- T85 Factors effecting corn silage starch hydrolysis potential. A. E. Dorshorst*, P. C. Hoffman, N. M. Esser, M. G. Bertram, and T. K. Seeger, *University of Wisconsin, Madison*.
- T86 Comparing three different methods for assessing corn silage density. R. J. Norell^{*1}, M. Chahine², S. Hines³, T. Fife², M. De Hario⁴, and S. C. Parkinson⁵, ¹*University of Idaho, Idaho Falls*, ²*University of Idaho, Twin Falls*, ³*University of Idaho, Shoshone*, ⁴*University of Idaho, Gooding*, ⁵*University of Idaho, Preston*.
- T87 Effect of length of time ensiled on dry matter, starch and fiber digestibility in whole plant corn silage. C. M. Hallada^{*1}, D. A. Sapienza², and D. Taysom³, ¹*Vita Plus Corporation, Madison, WI*, ²*Sapienza Analytica, LLC, Slater, IA*, ³*Dairyland Laboratories Inc., Arcadia, WI*.
- T88 Effect of month of sample submittal on corn silage nutrient fractions, starch availability, NDF digestibility, and fermentation profiles measured at a commercial forage-testing laboratory. R. T. Ward^{*1} and M. B. de Ondarza², ¹*Cumberland Valley Analytical Services, Inc., Hagerstown, MD*, ²*Paradox Nutrition, LLC, West Chazy, NY*.
- T89 Aerobic stability and silage quality parameters. Y. Acosta Aragón*, G. Boeck, A. Klimitsch, G. Schatzmayr, and S. Pasteiner, *Biomim GmbH, Herzogenburg, Lower Austria, Austria*.
- T90 *Streptococcus bovis* as a silage inoculant: A second chance. F. E. Contreras-Govea^{*1}, R. E. Muck², and J. B. Russell³, ¹*University of Wisconsin, Madison*, ²*USDA-ARS Dairy Forage Research Center, Madison, WI*, ³*USDA-ARS, Ithaca, NY*.

- T91 An evaluation of the effectiveness of *Lactobacillus buchneri* 40788 to improve the aerobic stability of corn silage in farm silos. L. J. Mari^{1,3}, R. J. Schmidt^{*1}, L. G. Nussio³, C. M. Hallada², and L. Kung, Jr.¹, ¹University of Delaware, Newark, ²Vita Plus Corporation, Madison, WI, ³University of Sao Paulo, Piracicaba, SP, Brazil.
- T92 The effect of *Lactobacillus buchneri* 40788 or *Lactobacillus plantarum* MTD-1 on the fermentation and aerobic stability of corn silages ensiled at two dry matter contents. W. Hu^{*}, R. J. Schmidt, E. E. McDonell, C. M. Klingerman, and L. Kung, Jr., University of Delaware, Newark.
- T93 The effect of combining *Lactobacillus buchneri* 40788 with lactic acid bacteria on the fermentation, microbial populations and aerobic stability of brown midrib corn silage. L. J. Reich^{*}, M. W. Hofherr, R. J. Schmidt, W. Hu, and L. Kung, Jr., University of Delaware, Newark.
- T94 Effect of the silage additive and the ensiled substrate on the silage quality parameters. Y. Acosta Aragón^{*}, G. Boeck, A. Klimitsch, G. Schatzmayr, and S. Pasteiner, Biomin GmbH, Herzogenburg, Lower Austria, Austria.
- T95 Effect of a microbial inoculant producing ferulic acid esterase on the fermentation and NDF digestibility of normal and BMR corn silages. M. W. Hofherr^{*}, L. J. Reich, M. C. Der Bedrosian, M. C. Santos, W. Hu, and L. Kung, Jr., University of Delaware, Newark.
- T96 Nutritive value of sorghum silage added bacterial inoculants. R. H. de T. e Buschinelli de Goes^{*1}, A. C. Martinez², C. O. de Abreu², and K. C. da S. Brabes¹, ¹Universidade Federal da Grande Dourados, Dourados, MS, Brasil, ²Universidade Estadual de Maringá, Umuarama, PR, Brasil.
- T97 Microbial inoculant effects on in situ ruminal dry matter and neutral detergent fiber disappearance of corn silage. K. E. Cowles^{*} and M. R. Murphy, University of Illinois, Urbana, IL.
- T98 Impact of chloride fertilization and Silo-King[®] on the nutrient content, digestibility, and mycotoxin concentrations in corn silage. D. H. Kleinschmit^{*}, D. P. Casper, and D. A. Spangler, Agri-King, Inc., Fulton, IL.

Graduate Student Paper Competition
ADSA Production Division Poster Competition
Exhibit Hall CDE

- T99 Ruminal and intestinal crude protein digestibility of triticale dried distillers grains with solubles. K. T. Wierenga^{*}, G. B. Penner, and M. Oba, University of Alberta, Edmonton, Alberta, Canada.
- T100 Heat treatment of bovine colostrum: Effect on viscosity, bacterial count and immunoglobulin G levels. J. A. Elizondo-Salazar^{*}, S. C. Donaldson, B. M. Jayarao, G. R. Ziegler, and A. J. Heinrichs, The Pennsylvania State University, University Park.
- T101 The effects of increased milking frequency during early lactation on milk yield and milk composition on commercial dairy farms. F. Soberon^{*}, C. M. Ryan, D. M. Galton, and T. R. Overton, Cornell University, Ithaca, NY.
- T102 Effect of abomasal infusion of butterfat, long chain fatty acids or CLA on milk fatty acid composition and mammary tissue lipogenic gene expression in lactating cows. A. K. G. Kadegowda^{*1}, J. J. Loo², L. S. Piperova¹, P. Delmonte³, and R. A. Erdman¹, ¹University of Maryland, College Park, ²University of Illinois, Urbana, ³FDA, College Park, MD.
- T103 Production of Holstein and Jersey × Holstein cattle grazing annual ryegrass/white clover pasture. J. C. Lopes^{*}, A. P. Vilela, K. A. Weigel, K. A. Albrecht, and D. K. Combs, University of Wisconsin, Madison.

Meat Science and Muscle Biology
Exhibit Hall CDE

- T104 Effect of different moving devices at loading on incidence of downers, and carcass and meat quality in market weight pigs. J. A. Correa^{*1}, H. Gonyou^{2,3}, S. Torrey⁴, N. Devillers⁴, J.-P. Laforest¹, and L. Faucitano⁴, ¹Laval University, Quebec City, QC, Canada, ²Prairie Swine Centre, Saskatoon, SK, Canada, ³University of Saskatchewan, Saskatoon, SK, Canada, ⁴Agriculture & Agri-Food Canada, Sherbrooke, QC, Canada.
- T105 Identification of boar-tainted carcasses with an electronic nose. S. Ampuero¹, M. Amrhein², S. Dubois¹, and G. Bee^{*1}, ¹Agroscope Liebefeld-Posieux, Research Station ALP, Posieux, Switzerland, ²Online Control LTD, Lausanne, Switzerland.
- T106 Age at the beginning of the free-range fattening period affects subcutaneous fat quality of Iberian pigs. M. A. Latorre^{*}, B. Prieto, D. G. Valencia, and M. P. Serrano, Centro de Investigación y Tecnología Agroalimentaria de Aragón, Zaragoza, Spain.
- T107 Effect of castration of females on meat quality and fatty acid profile of backfat in Iberian pigs reared under intensive production systems. M. P. Serrano¹, D. G. Valencia¹, R. Lázaro¹, A. Fuentetaja², and G. G. Mateos^{*1}, ¹Universidad Politécnica de Madrid, Spain, ²Copese, Segovia, Spain.

- T108 Effect of conjugated linoleic acid, betaine or both on fatty acid composition of growing Iberian gilts. I. Fernandez-Figares*, J. M. Rodriguez-Lopez, L. Gonzalez-Valero, R. Nieto, M. Lachica, and J. F. Aguilera, *Spanisch National Research Council, CSIC, Granada, Spain*.
- T109 Effect of L-carnitine supplementation on the performance and pork quality traits of growing-finishing swine fed three levels of corn oil. J. K. Apple*, J. T. Sawyer¹, C. V. Maxwell¹, J. C. Woodworth², J. W. S. Yancey¹, and R. E. Musser³, ¹University of Arkansas Division of Agriculture, Fayetteville, ²Lonza, Inc., Allendale, NJ, ³Hubbard Feeds, Inc., Mankato, MN.
- T110 Effect of L-carnitine supplementation on the fatty acid composition of subcutaneous fat and LM from swine fed three levels of corn oil. J. K. Apple*, J. T. Sawyer¹, C. V. Maxwell¹, J. W. S. Yancey¹, J. C. Woodworth², and R. E. Musser³, ¹University of Arkansas Division of Agriculture, Fayetteville, ²Lonza, Inc., Allendale, NJ, ³Hubbard Feeds, Inc., Mankato, MN.
- T111 Carcass and *Longissimus dorsi* characteristics of finishing pigs fed sweet potato (*Ipomoea batatas* [L] Lam.) meal. S. Pietrosemoli*, O. E. Moron-Fuenmayor¹, A. Paez¹, and M. J. Villamide², ¹Facultad de Agronomia. La Universidad del Zulia, Maracaibo, Venezuela., ²ETSIA. Universidad Politecnica de Madrid, Madrid, España.
- T112 Relationships of belly-flop measurements with smokehouse yield and fatty acid composition. J. W. S. Yancey*, J. K. Apple, J. T. Sawyer, M. S. Lee, and M. D. Wharton, *University of Arkansas Division of Agriculture, Fayetteville*.
- T113 Comparisons of fatty acid composition in pork belly primary and secondary lean, and seam and subcutaneous fat. J. W. S. Yancey*, J. K. Apple¹, J. T. Sawyer¹, M. S. Lee¹, and J. C. Woodworth², ¹University of Arkansas Division of Agriculture, Fayetteville, ²Lonza, Inc., Allendale, NJ.
- T114 Influence of gender and slaughter age on meat and subcutaneous fat quality of heavy pigs destined to high quality dry-cured hams. M. A. Latorre*, G. Ripoll¹, L. Ariño², and B. Blanco³, ¹Centro de Investigación y Tecnología Agroalimentaria de Aragón, Zaragoza, Spain, ²Integraciones Porcinas S.L., Teruel, Spain, ³Jamones y Embutidos Alto Mijares S.L., Teruel, Spain.
- T115 Carcass fatty acid composition of growing calves fed diets containing canola oil supplements. M. Eftekhari, K. Rezayazdi*, A. Nikkhah, and A. Nejati Javaremi, *University of Tehran, Karaj-Tehran-Iran*.
- T116 Effect of canola oil on performance and carcass characteristics of Holstein male calves. M. Eftekhari, K. Rezayazdi*, A. Nikkhah, and A. Nejati Javaremi, *University of Tehran, Karaj-Tehran-Iran*.
- T117 Characterization of meat quality and lipid profile from steers fed crude glycerol. H. L. Evans*, B. R. Wiegand, M. S. Kerley, J. H. Porter, K. S. Roberts, and B. A. Verseemann, *University of Missouri, Columbia*.
- T118 Sensorial characteristics of beef from heifers fed with different lipid supplements in the finishing phase. M. C. A. Santana*, P. H. M. Dian¹, R. A. Reis¹, A. V. Pires², G. Fiorentini¹, A. F. Ribeiro¹, M. A. A. Balsalobre³, and T. T. Berchielli¹, ¹São Paulo State University, Jaboticabal, São Paulo, Brazil, ²São Paulo University, Piracicaba, São Paulo, Brazil, ³Bellman, Mirassol, São Paulo, Brazil.
- T119 Carcass traits of low and high residual feed intake Nellore (*Bos indicus*) steers. R. C. Gomes*, R. S. Araujo¹, E. Telles¹, S. L. Silva¹, R. D. Sainz², and P. R. Leme¹, ¹University of Sao Paulo, Pirassununga, SP, Brazil, ²University of California, Davis.
- T120 Effects of genetic group and concentrate feeding on pH and temperature of beef carcasses. I. M. de Oliveira, P. V. R. Paulino*, M. I. Marcondes, J. Cavali, S. de C. Valadares Filho, E. Detmann, L. F. Prados, V. R. M. Couto, and M. F. L. Sales, *Universidade Federal de Viçosa, Viçosa, Minas Gerais, Brazil*.
- T121 Finishing changes in bovine muscle fiber types as influenced by genetic group and slaughter weight. R. Mello*, A. C. de Queiroz², M. H. de Faria³, P. B. Costa², F. D. de Resende³, G. F. V. Bayão², and C. A. Neves², ¹Universidade Federal de Roraima, Boa Vista, RR, Brazil, ²Universidade Federal de Viçosa, Viçosa, MG, Brazil, ³APTA, Colina, SP, Brazil.
- T122 Meat cholesterol, saturated and unsaturated fatty acids of *Bos indicus* type feedlot heifers. M. P. de Oliveira^{1,3}, M. de B. Arrigoni¹, C. L. Martins¹, É. Rodrigues¹, D. D. Millen¹, R. D. L. Pacheco*, L. M. N. Sarti¹, R. S. Barducci¹, J. P. S. T. Bastos¹, T. M. Mariani¹, S. R. Baldin¹, T. C. B. da Silva², and H. N. de Oliveira¹, ¹FMVZ/UNESP, Botucatu, São Paulo, Brazil, ²Faculdade de Zootecnia/UNESP, Dracena, São Paulo, Brazil, ³Apoio FAPESP.
- T123 Effects of implanting and feeding zilpaterol on performance, carcass characteristics and subprimal meat yields of fed cows. S. Neill*, J. A. Unruh², T. T. Marston², J. R. Jaeger³, M. C. Hunt², and J. J. Higgins², ¹PIC, Hendersonville, TN, ²Kansas State University, Manhattan, ³Kansas State University Agricultural Research Center, Hays.
- T124 Effects of implanting and feeding zilpaterol on retail display-color stability and palatability of strip loin and knuckle steaks from fed cows. S. Neill*, J. A. Unruh², T. T. Marston², M. J. Daniel², M. C. Hunt², M. E. Dikeman², and J. J. Higgins², ¹PIC, Hendersonville, TN, ²Kansas State University, Manhattan.
- T125 Influence of sarcomere length on aging and hydrodynamic pressure processing of beef muscle. B. Bowker*, J. Eastridge, E. Paroczay, and M. Solomon, *USDA-ARS, Beltsville, MD*.

- T126 Influence of fiber type on palatability attributes of beef round muscles. M. J. Anderson*, E. Steadham, C. Fedler, K. Prusa, S. M. Lonergan, and E. Huff-Lonergan, *Iowa State University, Ames.*
- T127 Prevention of internal premature browning in cooked steaks packaged in high-oxygen modified atmosphere by increasing reducing ability through lactate enhancement. Y. H. Kim*, J. T. Keeton, and J. W. Savell, *Texas A&M University, College Station.*

Nonruminant Nutrition Feed Additives Exhibit Hall CDE

- T128 The effects of Paylean® and α -lipoic acid on growth performance and carcass characteristics of finishing pigs. J. R. Bergstrom*, J. L. Nelssen, R. D. Goodband, M. D. Tokach, J. M. DeRouche, and S. S. Dritz, *Kansas State University, Manhattan.*
- T129 Effects of tannin added to low-iron antibiotic-free diet on performance, hematology, iron status, fecal microflora and incidence of diarrhea in weaned pigs. S. H. Lee, P. L. Shinde, J. Y. Choi, I. K. Kwon, S. I. Park, and B. J. Chae*, *Kangwon National University, Chuncheon, Kangwon-Do, Republic of Korea.*
- T130 Effect of *Euchaena mexicana* Schrad diets on nutrient digestibility and nitrogen metabolism for Wulong Goose. B. W. Wang*, M. A. Zhang, X. P. Wu, G. L. Liu, and X. H. Jia, *Qingdao Nongye University, Qingdao, Shandong Province, China.*
- T131 Feeding different levels of zearalenone on growth, vulva size, and organ weight in postweanling female pig. Z. B. Yang*, H. Zao¹, C. C. Chen², and F. Chi³, ¹*Shandong Agricultural University, Taian, Shandong, PRC*, ²*Chaoyang University Technology, Taichuang, Taiwan, ROC*, ³*Oil Dri Corporation of America, Chicago, IL.*
- T132 Effect of probiotic and enzyme on fatty-liver performance and major cecum microorganisms in Landes Goose. B. W. Wang*, S. H. Yu, M. A. Zhang, L. Wang, B. Yue, L. Z. Jing, X. X. Wei, Y. C. Wang, Y. C. Fan, Q. L. Wang, Q. Zhang, and P. Sun, *Qingdao Nongye University, Qingdao, Shandong Province, China.*
- T133 Study on the ferment characteristics and application effect of *Penicillium oxalicum* Currie & Thom producing pectinase. B. W. Wang*, L. Z. Jing, F. Y. Long, B. Yue, M. A. Zhang, S. H. Yu, Y. C. Wang, X. X. Wei, Q. Zhang, and Q. Feng, *Qingdao Nongye University, Qingdao, Shandong Province, China.*
- T134 Live weight dependent responses to adding an enhanced milky flavor (Luctarom® Advance) to a piglet nursery feeding program. E. Roura*, I. G. Tedó¹, X. Puigvert², and I. Ipharraguerre¹, ¹*Lucta SA, R+D Feed Additives, Barcelona, Spain*, ²*Universitat de Girona, Girona, Spain.*
- T135 Identification of the porcine umami taste receptor dimer responsible for the taste of amino acids. E. Roura*, R. Holt², and K. C. Klasing², ¹*Lucta SA, R+D Feed Additives, Barcelona, Spain*, ²*University of California, Davis.*
- T136 Effect of virginiamycin on apparent ileal digestibility of amino acids by growing pigs. L. L. Stewart*, B. G. Kim¹, B. R. Gramm², R. D. Nimmo², and H. H. Stein¹, ¹*University of Illinois, Urbana*, ²*Phibro Animal Health Co., Ridgefield Park, NJ.*
- T137 Effect of β -glucanase on performance and apparent nutrient digestibility in weaned piglets. E. Grilli*, I. Kühn², A. Panciroli¹, and A. Piva¹, ¹*DIMORFIPA, Ozzano Emilia, Bologna, Italy*, ²*AB Enzymes GmbH, Darmstadt, Germany.*
- T138 Dietary supplementation of oregano essential oils on the performance of broilers under high altitude condition. L. Betancourt¹, C. Ariza-Nieto², F. Rodriguez², V. Phandanouvong², A. Padilla¹, M. Hernandez¹, M. Hume³, D. Nisbet³, and G. Afanador-Tellez², ¹*Universidad Salle, Bogota, Colombia*, ²*CORPOICA, Bogota, Colombia*, ³*USDA, ARS, FFSRU, College Station, TX.*
- T139 Isolation of a *Bacillus licheniformis* DK42 producing cellulase and xylanase, and properties of the enzymes. M. J. Kim, S. J. Lim, and D.-K. Kang*, *Dankook University, Cheonan, Chungnam-do, Rep. of Korea.*
- T140 Effect of dietary probiotic and/or prebiotic on humoral immune response of Ross broiler chickens. H. Ziaei*, M. A. Karimi Torshizi², M. Bashtani¹, H. Farhangfar¹, H. Naemipour¹, and A. Zeinali¹, ¹*Birjand University, Birjand, Iran*, ²*Tarbiat Modarres University, Tehran, Iran.*
- T141 Assessment of the antimicrobial activity of carvacrol, cinnamaldehyde and capsaicin oleoresin in stomach, jejunum, and cecum digestive content of weaned pigs using fermentation assay. E. G. Manzanilla¹, M. Anguita¹, S. Martin-Orúe¹, J. P. Meunier², and J. Gasa¹, ¹*Universitat Autònoma de Barcelona, Spain*, ²*Pancosma Research, Geneva, Switzerland.*
- T142 Effects of essential oils supplementation on growth performance, nutrient digestibility, blood characteristics, fecal noxious gas concentration and meat quality in growing-finishing pigs. J. S. Yoo*, J. H. Cho¹, Y. J. Chen¹, C. Y. Lee², H. G. Moon³, and I. H. Kim¹, ¹*Dankook University, Cheonan, Chungnam, Korea*, ²*Jinju National University, Gyeongnam, Korea*, ³*National Institute of Animal Science, Korea.*
- T143 Effects of dietary *Rhodopseudomonas capsulata*, *Rhizopus oligosporus* & *Aspergillus oryzae* on growth performance nutrient digestibility and blood characteristics in growing pigs. J. S. Yoo*, H. J. Kim¹, S. O. Shin¹, Y. Haung¹, J. D. Kim², I. C. Kim³, and I. H. Kim¹, ¹*Dankook University, Cheonan, Chungnam, Korea*, ²*CJ CheilJedang, Seoul, Korea*, ³*National Institute of Animal Science, Korea.*

- T144 Effect of dietary organic acid mixture (lactic acid, formic acid, citric acid, butyric acid and phosphoric acid) on growth performance, organ weight, blood immunological parameter and intestinal villi morphology in broilers. H. D. Jang^{*1}, J. S. Yoo¹, Y. Huang¹, T. X. Zhou¹, J. H. Cho¹, J. D. Hancock², and I. H. Kim¹, ¹Dankook University, Cheonan, Chungnam, Korea, ²Kansas State University, Manhattan.
- T145 Effects of dietary supplementation of blended essential oil on growth performance, nutrient digestibility, blood profiles, fecal characteristics in weanling pigs. Y. Huang^{*1}, J. S. Yoo¹, H. J. Kim¹, Y. Wang¹, Y. J. Chen¹, J. H. Cho¹, J. D. Hancock², K. Y. Whang³, and I. H. Kim¹, ¹Dankook University, Cheonan, Chungnam, Korea, ²Kansas State University, Manhattan, ³Korea University, Seoul, Korea.
- T146 Effects of reducing dietary crude protein, yucca and multi-carbohydrase supplementation on egg production performance, nutrition digestibility, and fecal noxious gas contents in laying hens. Y. Huang^{*1}, Y. Hyun², H. S. Kim², Y. Wang¹, H. J. Kim¹, S. O. Shin¹, and I. H. Kim¹, ¹Dankook University, Cheonan, Chungnam, Korea, ²Seoul Feed, Co. LTD., Seoul, Korea.
- T147 Effect of dietary microbial phytase on laying performance, egg quality, phosphorus utilization and nutrient utilization in laying hens. H. D. Jang^{*1}, Y. Hyun², H. S. Kim¹, I. W. Hwang³, J. S. Yoo¹, Y. J. Chen¹, J. H. Cho¹, and I. H. Kim¹, ¹Dankook University, Cheonan, Chungnam, Korea, ²Seoul Feed, Co. LTD., Seoul, Korea, ³EASY BIO System, Inc, Seoul, Korea.
- T148 Effects of dietary biotite on growth performance, blood immunological parameters, stress concentration of serum and fecal malodor gas emission in growing pigs. H. D. Jang^{*1}, J. D. Kim², J. W. Hong³, J. S. Yoo¹, J. H. Cho¹, Y. K. Jeong⁴, and I. H. Kim¹, ¹Dankook University, Cheonan, Chungnam, Korea, ²CJ Cheil Jedang, Seoul, Korea, ³DAESANG Famsco, Anseong, Korea, ⁴SEOBONG Biobestech, Co., LTD, Seoul, Korea.
- T149 Use of fluidized bed technology for the development of sustained-release carvacrol pellets for a feed additive application. J.-P. Meunier^{*1}, J.-M. Cardot², and M. Alric², ¹Pancosma Research, Geneva, Switzerland, ²University of Auvergne, France.
- T150 Effects of phytase and/or 25-hydroxyvitamin D3 inclusion on the performance, mineral balance and bone parameters of finisher pigs fed low phosphorus diets. D. A. Gahan, J. J. Callan, and J. V. O'Doherty^{*}, *University College, Dublin, Ireland.*
- T151 Effect of reducing dietary crude protein, yucca and multi-carbohydrase supplementation on growth performance, meat quality, nutrient digestibility, and fecal noxious gas contents in broilers. Y. Huang^{*1}, Y. Hyun², H. S. Kim², H. J. Kim¹, Y. J. Chen¹, J. H. Cho¹, J. D. Hancock³, and I. H. Kim¹, ¹Dankook University, Cheonan, Chungnam, Korea, ²Seoul Feed, Co. LTD., Seoul, Korea, ³Kansas State University, Manhattan.
- T152 Effect of dietary phytase on growth performance, carcass parameter, meat quality, nutrient digestibility and phosphorus utilization in broilers. H. D. Jang^{*1}, J. S. Yoo¹, H. J. Kim¹, S. O. Shin¹, Y. Huang¹, T. X. Zhou¹, Y. J. Chen¹, J. H. Cho¹, Y. K. Han¹, and I. H. Kim¹, ¹Dankook University, Cheonan, Chungnam, Korea, ²Sungkyunkwan University, Suwon, Korea.
- T153 Effects of δ -aminolevulinic acid and vitamin C supplementation on egg performance and quality and hematological characteristics in laying hens. Y. J. Chen^{*1}, I. H. Kim¹, K. Y. Whang², J. C. Park³, J. H. Cho¹, J. S. Yoo¹, Y. Wang¹, Y. Huang¹, H. J. Kim¹, and S. O. Shin¹, ¹Dankook University, Cheonan, Chungnam, Korea, ²Korea University, Seoul, Korea, ³National Institute of Animal Science, RDA, Cheonan, Chungnam, Korea.
- T154 Evaluation of supplemental α -aminolevulinic acid and vitamin C on growth performance, blood characteristics, immune organ weight and iron status in broilers. Y. J. Chen^{*1}, C. Y. Lee², I. H. Kim¹, J. H. Cho¹, J. S. Yoo¹, Y. Wang¹, Y. Huang¹, H. J. Kim¹, and S. O. Shin¹, ¹Dankook University, Cheonan, Chungnam, Korea, ²Jinju National University, Gyeongnam, Korea.
- T155 Effects of a microencapsulated blend of organic acids and natural identical flavors supplement to weaned pig diet. E. Grilli^{*1}, V. Pizzamiglio¹, M. R. Messina¹, L. Jørgensen³, H. Maribo³, R. Manini², and A. Piva¹, ¹DIMORFIPA, Ozzano Emilia, Bologna, Italy, ²Vetagro Srl, Reggio Emilia, Italy, ³Danish Pig Production, Copenhagen, Denmark.
- T156 The effect phytase on growth performance, metatarsal and 10th rib bone characteristics, and tissue phosphorus levels in growing pigs. T. C. Tsai^{*}, C. R. Dove, and M. J. Azain, *University of Georgia, Athens.*
- T157 Copra meal supplementation with mannanase on growth performance, pork quality and nutrient digestibility in growing-finishing pigs. D. H. Kim^{*}, J. H. Yoon, W. S. Ju, Y. K. Hong, and Y. Y. Kim, *Seoul National University, Seoul, South Korea.*
- T158 Effects of virginiamycin on microbial ecology in ileal digesta and feces of growing pigs. M. Song^{*1}, L. L. Stewart¹, J. Barnes¹, B. R. Gramm², R. D. Nimmo², H. H. Stein¹, and J. E. Pettigrew¹, ¹University of Illinois, Urbana, ²Phibro Animal Health Co., Ridgely Park, NJ.
- T159 Quantitative *in vitro* assay to evaluate yeast products concerning their binding activity of enteropathogenic bacteria. A. Ganner^{*}, L. Fink, and G. Schatzmayr, *Biomim Research Center, Tulln, Lower Austria, Austria.*
- T160 Exopolysaccharide produced by *Enterobacter cloacae* Z0206 improves the humoral and cellular responses of immunologically intact and immunocompromised mice. C. Xu, Y. Wang^{*}, M. Jin, X. Yang, and Z. Xu, *Zhejiang University, Hangzhou, Zhejiang, P. R. China.*
- T161 Feeding an encapsulated nutritional blend in combination with ractopamine improves feed conversion and loin depth in finishing pigs. J. W. Frank^{*1}, C. V. Maxwell¹, Z. B. Johnson¹, S. A. Hansen², and R. E. Musser³, ¹University of Arkansas, Fayetteville, ²Ridley Inc., Mankato, MN, ³SODA Feed Ingredients LLC, Mankato, MN.

- T162 Comparison of two encapsulated nutritional blends in combination with ractopamine on growth performance and carcass characteristics in finishing pigs. J. W. Frank*¹, C. V. Maxwell¹, Z. B. Johnson¹, S. A. Hansen², S. L. Johnston², M. De La Llata², and R. E. Musser³, ¹University of Arkansas, Fayetteville, ²Ridley Inc., Mankato, MN, ³SODA Feed Ingredients LLC, Mankato, MN.
- T163 Effects of mannan oligosaccharide on growth performance and serum cytokines of weaned pigs. M. T. Che*¹, R. W. Johnson, K. W. Kelley, and J. E. Pettigrew, *University of Illinois, Urbana.*
- T164 Fecal-oral transmission from sow to piglet of a *Bacillus* based direct-fed microbial (Adsero™) and its effect on clostridial shedding. A. Baker*¹, E. Davis¹, J. D. Spencer², R. Moser², and T. Rehberger¹, ¹Agtech Products, Inc., Waukesha, WI, ²JBS United, Inc., Sheridan, IN.
- T165 Effect of carbohydrase enzyme supplementation on the performance and nutrient digestibility in growing pigs fed barley-wheat distillers dried grains with solubles based diet. I. A. Emiola*¹, B. A. Slominski, and C. M Nyachoti, *University of Manitoba, Winnipeg, MB, Canada.*
- T166 Pooled-analysis of data demonstrating the performance benefits of including mannan oligosaccharides in swine nursery diets. B. Corrigan*¹, D. Koehler, and G. Grinstead, *Vita Plus Corporation, Madison, WI.*
- T167 Development and validation of a mastication simulator. A. Woda*¹, A. Mishellany¹, J. P. Meunier², O. François¹, M. Alric², and M. A. Peyron¹, ¹Faculty of Odontology, Clermont Fd, France, ²Faculty of Pharmacy, Clermont Fd, France.
- T168 Effect of supplying mannan oligosaccharide (MOS) to pig diets on response to an immune challenge. I. F. Hung*¹, M. D. Lindemann¹, G. L. Cromwell¹, B. G. Kim¹, and M. G. Holt², ¹University of Kentucky, Lexington, ²VI-COR, Mason City, IA.

Physiology and Endocrinology Immune Function and Health Exhibit Hall CDE

- T169 Alpha-linolenic acid exerts anti-inflammatory effect in 3T3-L1 adipocytes through mechanisms that involve activation of AMPK. K. M Ajuwon*¹, T. A Winters², B. Whisenhunt², and W. Banz², ¹Purdue University, West Lafayette, IN, ²Southern Illinois University, Carbondale.
- T170 Polarized interleukin-8 (IL8) secretion by swine jejunal epithelial cells (IPEC-J2) treated with soluble beta-glucan (BG). T. E. Burkey* and S. S. Shepherd, *University of Nebraska, Lincoln.*
- T171 The variation of IgG1, IgA and IgM concentration in blood and milk of dairy cows after implanting antigen-releasing device (ARD). C. G. Zhang^{1,2}, J. Q. Wang*¹, D. P. Bu¹, G. L. Liu¹, J. B. Cheng¹, X. L. Dong^{1,2}, K. L. Liu¹, H. Y. Wei¹, L. Y. Zhou¹, and G. Q. Zhao², ¹Chinese Academy of Agricultural Sciences, Beijing China, ²Yangzhou University, Yangzhou, China.
- T172 Canonical correlation of milk immunoglobulins, lactoferrin concentration and Dairy Herd Improvement data of Chinese Holstein cows. G. L. Liu¹, J. Q. Wang*¹, D. P. Bu¹, J. B. Cheng¹, C. G. Zhang^{1,2}, X. L. Dong^{1,2}, H. Y. Wei¹, L. Y. Zhou¹, and K. L. Liu¹, ¹Chinese Academy of Agricultural Sciences, Beijing, China, ²Yangzhou University, Yangzhou, China.
- T173 Mifepristone (RU486) modulation of dexamethasone-induced suppression of *in vitro* proliferation of equine lymphocytes. K. A. Gutierrez*¹, N. C. Burdick¹, J. G. Lyons¹, C. L. Barton¹, J. C. Laurenz², N. D. Cohen¹, N. H. Ing¹, and T. H. Welsh Jr.¹, ¹Texas A&M University, College Station, ²Texas A&M University, Kingsville.
- T174 Bovine viral diarrhea virus, abnormal cervical mucous discharge and fertility in cows. S. Yavru*¹, M. Kale², M. S. Gulay², O. Yapici¹, O. Bulut¹, and A. Ata², ¹Selçuk University, Konya, Turkey, ²Mehmet Akif Ersoy University, Burdur, Turkey.

Physiology and Endocrinology Nutritional and Metabolic Effects on Growth, Reproduction and Lactation Exhibit Hall CDE

- T175 Measurement of adiponectin in lactating dairy cows. J. R. Raddatz*¹, A. N. Elias, and C. S. Whisnant, *North Carolina State University, Raleigh.*
- T176 L-carnitine stimulates the early postnatal myofiber formation in pig skeletal muscle. D. Loesel*¹, C. Kalbe, G. Nuernberg, and C. Rehfeldt, *Research Institute for the Biology of Farm Animals, Dummerstorf, Germany.*
- T177 The assessment of complex I concentration in muscle mitochondria of crossbred steers with high and low residual feed intake (RFI). M. P. Davis*¹, J. H. Porter, and M. S. Kerley, *University of Missouri, Columbia.*
- T178 Madin-Darby Bovine Kidney (MDBK) cells and liver tissue of periparturient cows share remarkable similarity in gene expression profiles. M. Bionaz*¹, R. E. Everts, H. A. Lewin, J. K. Drackley, and J. J. Loor, *University of Illinois, Urbana.*

- T179 Effect of 17 β -estradiol on distal colon contractions and L-arginine-NOS-NO-cGMP-cGMP-PK1 pathway. A. Bulbul¹, K. Altunbas¹, H. A. Celik¹, G. Avci¹, O. Yildiz-Gulay^{*1}, and M. S. Gulay², ¹*Afyon Kocatepe University, Afyonkarahisar, Turkey*, ²*Mehmet Akif Ersoy University, Burdur, Turkey*.
- T180 Effect of ovarian steroids on distal colon contractions and L-arginine-NOS-NO-cGMP-cGMP-PK1 pathway. A. Bulbul¹, A. Yagci¹, K. Altunbas¹, H. A. Celik¹, G. Avci¹, O. Yildiz-Gulay^{*1}, and M. S. Gulay², ¹*Afyon Kocatepe University, Afyonkarahisar, Turkey*, ²*Mehmet Akif Ersoy University, Burdur, Turkey*.
- T181 Effect of diets containing soybean meal or canola meal on blood metabolites in early lactation Iranian Holstein cows. F. Hosseini, A. Heravi Moussavi^{*}, M. Danesh Mesgaran, and J. Arshami, *Ferdowsi University of Mashhad, Mashhad, Khorasan Razavi, Iran*.
- T182 Effects of carbohydrate source and processing on serum progesterone and insulin concentrations of dairy cattle. P. Moriel^{*1}, T. S. Scatena¹, O. G. Sa Filho¹, R. F. Cooke², and J. L. M. Vasconcelos¹, ¹*FMVZ-UNESP, Botucatu, Brazil*, ²*University of Florida, Gainesville*.
- T183 Effects of prepartum 2,4-thiazolidinedione on plasma leptin and insulin sensitivity in transition dairy cows. K. M. Schoenberg^{*}, K. L. Smith, R. M. Ehrhardt, Y. R. Boisclair, and T. R. Overton, *Cornell University, Ithaca, NY*.
- T184 The effects of prepartum 2,4-thiazolidinedione administration to dairy cows on energy balance, growth hormone, and insulin-like growth factor-I during the transition period. L. A. Winkelman^{*}, K. L. Smith, R. M. Ehrhardt, and T. R. Overton, *Cornell University, Ithaca, NY*.
- T185 The metabolic status during the dry period influences the ovulation of the first follicular wave postpartum in dairy cows. N. Castro^{*1,2}, C. Kawashima³, H. A. van Dorland¹, S. Richter¹, I. Morel⁴, A. Miyamoto³, and R. M. Bruckmaier¹, ¹*University of Bern, Bern, Switzerland*, ²*Las Palmas de Gran Canaria University, Arucas, Spain*, ³*Obihiro University of Agriculture and Veterinary Medicine, Obihiro, Japan*, ⁴*Agroscope Liebefeld-Posieux, Posieux, Switzerland*.

Physiology and Endocrinology The Hypothalamic-Somatotrophic Axis Exhibit Hall CDE

- T186 Assessment of third-ventricle cerebrospinal fluid concentrations of GHRH in cattle: Correspondence with serum concentrations of GH and influences of appetite-regulating peptides. M. G. Thomas^{*1}, M. Amstalden², D. M. Hallford¹, G. A. Silver¹, M. D. Garcia¹, D. H. Keisler³, and G. L. Williams⁴, ¹*New Mexico State University, Las Cruces*, ²*Texas A&M University, College Station*, ³*University of Missouri, Columbia*, ⁴*Texas AgriLife, Beeville, TX*.
- T187 IGF-I modulation of GH and LH secretion in the pig. C. R. Barb and G. J. Hausman^{*}, *USDA, ARS, Russell Research Center, Athens, GA*.
- T188 Growth hormone directly stimulates insulin production from the bovine pancreatic islets. J. Feng^{1,2}, F. C. Gwazdauskas¹, and H. Jiang^{*1}, ¹*Virginia Polytechnic Institute and State University, Blacksburg*, ²*Zhejiang University, Hangzhou, Zhejiang, China*.
- T189 Milk composition is not affected by retail milk labels regarding farm management practices. J. L. Vicini^{*1}, T. D. Etherton², P. M. Kris-Etherton², J. M. Ballam¹, R. D. Cady¹, M. F. McGrath¹, M. C. Lucy³, A. C. Fitzgerald¹, T. D. Klusmeyer¹, and M. F. Migliazzo¹, ¹*Monsanto Co., LC, St. Louis, MO*, ²*Pennsylvania State University, University Park*, ³*University of Missouri, Columbia*.

Ruminant Nutrition Carbohydrates – Dairy Exhibit Hall CDE

- T190 Effects of beet pulp substituted for barley grain in fat cows ration at the late lactation. E. Mahjoubi^{*}, H. Amanlou, D. Zahmatkesh, M. Ghilichkhan, and N. Aghaziaraty, *Zanjan University, Zanjan, Iran*.
- T191 Intake and ponderal development of dairy heifers fed sugar cane and different protein levels diets. M. F. S. Queiroz^{*1,2}, T. T. Berchielli^{1,2}, R. D. Signoretti³, A. F. Ribeiro^{1,2}, and P. H. M. Dian^{1,2}, ¹*Faculdade de Ciências Agrárias e Veterinárias–UNESP, Jaboticabal, São Paulo, Brasil*, ²*Fundação de Amparo à Pesquisa do Estado de São Paulo–FAPESP, São Paulo, Brasil*, ³*Agência Paulista de Tecnologia dos Agronegócios, Colina, São Paulo, Brasil*.
- T192 Effects of different ratios of nonfiber carbohydrate to ruminal degradable protein on the performance of Holstein cows in barley based diets. H. Rafiee^{*1}, A. Afzalzadeh¹, A. Khadem¹, and A. Asadi², ¹*Dept of Anim. Sci. University of Tehran, Aboureihan Campus, Tehran, Iran*, ²*Dept of Anim. Sci. Isfahan University of Technology, Isfahan, Iran*.
- T193 An alternative low-starch compared with a traditional high-starch calf starter results in similar growth rate and rumen development at weaning. M. Vestergaard^{*}, L. Puggaard, A. Kosiorowska, S. K. Jensen, N. B. Kristensen, and J. Sehested, *Faculty of Agricultural Sciences, University of Aarhus, Foulum, Denmark*.

- T194 Rumens available soluble, insoluble and total structural and non-structural carbohydrates and protein and their ratios: Effect of barley variety and growth year. P. Yu* and K. Hart, *University of Saskatchewan, Saskatoon, SK, Canada.*
- T195 Effects of dietary starch and unsaturated fat with Rumensin on milk fat depression in lactating dairy cattle. M. E. Van Amburgh*¹, J. L. Capper¹, G. D. Mechor², and D. E. Bauman¹, ¹*Cornell University, Ithaca, NY*, ²*Elanco Animal Health, Greenfield, IN.*
- T196 Effects of conventional or brown mid rib hybrid silage fed at two levels on intake, milk yield and composition, and rumen fermentation of dairy cows. T. D. Edwards*, G. A. Varga, R. H. Chung, V. A. Ishler, and M. Martinez, *The Pennsylvania State University, University Park.*
- T197 The effect of dietary sucrose on dry matter intake, plasma metabolites, and lactation performance for Holstein cows during the first 4 weeks of lactation. G. B. Penner* and M. Oba, *University of Alberta, Edmonton, Alberta, Canada.*
- T198 Efficacy of glycerol as a replacement for lactose in calf milk replacer. R. A. Ebert*¹, G. M. Willis², and J. K. Drackley¹, ¹*University of Illinois, Urbana*, ²*MSC, Dundee, IL.*
- T199 Effects of varying forage proportion and particle length on supply of amino acids. W. Z. Yang and K. A. Beauchemin*, *Research Center, Agriculture and Agri-Food Canada, Lethbridge, AB, Canada.*
- T200 Effects of barley grain processing and source of supplemental dietary fat on nutrient digestion and microbial protein synthesis in dairy cows. G. N. Gozho*, M. R. Hobin, and T. Mutsvangwa, *University of Saskatchewan, Saskatoon, Saskatchewan, Canada.*
- T201 Wheat, barley, or corn grain based starters with different alfalfa meal levels for Holstein calves. M. Noroozi¹, H. Amanlou¹, G. R. Ghorbani², and A. Nikkhab^{1,3}, ¹*Zanjan University, Zanjan, Iran*, ²*Isfahan University of Technology, Isfahan, Iran*, ³*University of Illinois, Urbana.*

Ruminant Nutrition

Fats – Dairy

Exhibit Hall CDE

- T202 Effect of supplementation with sunflower oil (SO) or seeds (SS) combined or not with fish oil (FO) on conjugated linoleic acid (CLA) in milk from grazing dairy cows. G. A. Gagliostro*¹, M. A. Rodríguez², P. Pellegrini², P. Gatti², G. Muset², D. Garcíarena¹, A. Ferlay³, and Y. Chilliard³, ¹*Instituto Nacional de Tecnología Agropecuaria, INTA, Balcarce, Buenos Aires, Argentina*, ²*Instituto Nacional de Tecnología Industrial, INTI, Buenos Aires, Argentina*, ³*Institut National de la Recherche Agronomique, INRA, Saint Genès Champanelle, France.*
- T203 Effect of dietary vegetable oil and antioxidant supplementation on dairy cattle performance and milk fat depression. M. He*¹, H. S. Xin², and L. E. Armentano¹, ¹*University of Wisconsin, Madison*, ²*China Agricultural University, Beijing, China.*
- T204 Effect of close-up fat supplementation on first 90 days milk production of Holstein dairy cows. M. Danesh Mesgaran* and A. R. Heravi Mousavi, *Dept. of Animal Science (Excellence Center for Animal Science), Ferdowsi University of Mashhad, Mashhad, Iran.*
- T205 Soybean oil and linseed oil supplementation affect profiles of ruminal microorganisms and fermentation parameters in dairy cows. D. P. Bu¹, S. L. Yang¹, J. Q. Wang*¹, Z. Y. Hu¹, D. Li¹, H. Y. Wei¹, L. Y. Zhou¹, and J. Loo², ¹*State Key Laboratory of Animal Nutrition, Institute of Animal Science, Chinese Academy of Agricultural Sciences, Beijing, P. R. China*, ²*University of Illinois, Urbana.*
- T206 Effects of soybean oil and linseed oil supplementation on digestibility of nutrient and milk composition in dairy cows. D. P. Bu, Z. Y. Hu, J. Q. Wang*, S. L. Yang, D. Li, H. Y. Wei, and L. Y. Zhou, *State Key Laboratory of Animal Nutrition, Institute of Animal Science, Chinese Academy of Agricultural Sciences, Beijing, P. R. China.*
- T207 Effect of dietary linoleic acid and forage level on conjugated linoleic acid content in plasma and milk. D. P. Bu, J. Q. Wang*, S. J. Liu, H. Y. Wei, and L. Y. Zhou, *State Key Laboratory of Animal Nutrition, Institute of Animal Science, Chinese Academy of Agricultural Sciences, Beijing, P. R. China.*
- T208 Milk fatty acid composition of dairy cows fed increasing amounts of linseed oil. C. Benchaar*¹, M. Eugène¹, C. Côrtes¹, A. V. Chaves¹, H. V. Petit¹, T. A. McAllister², A. D. Iwaasa³, and P. Y. Chouinard⁴, ¹*Agriculture and Agri-Food Canada, Dairy and Swine Research and Development Centre, Sherbrooke, Quebec, Canada*, ²*Agriculture and Agri-Food Canada, Lethbridge, Alberta, Canada*, ³*Agriculture and Agri-Food Canada, Semi-arid Prairie Agricultural Research Centre, Swift Current, Saskatchewan, Canada*, ⁴*Laval University, Quebec, Quebec, Canada.*
- T209 Digestion, milk production, and milk composition of dairy cows fed increasing amounts of linseed oil. C. Benchaar*¹, M. Eugène¹, C. Côrtes¹, A. V. Chaves¹, H. V. Petit¹, T. A. McAllister², A. D. Iwaasa³, and P. Y. Chouinard⁴, ¹*Agriculture and Agri-Food Canada, Dairy and Swine Research and Development Centre, Sherbrooke, Quebec, Canada*, ²*Agriculture and Agri-Food Canada, Lethbridge, Alberta, Canada*, ³*Agriculture and Agri-Food Canada, Agriculture and Agri-Food Canada, Semi-arid Prairie Agricultural Research Centre, Swift Current, Saskatchewan, Canada*, ⁴*Laval University, Quebec, Quebec, Canada.*

- T210 Effects of increasing amounts of linseed oil on ruminal fermentation, protozoa counts, and forage in situ ruminal degradation in dairy cows. C. Benchaar^{*1}, M. Eugène¹, C. Côrtes¹, A. V. Chaves¹, H. V. Petit¹, T. A. McAllister², A. D. Iwaasa³, and P. Y. Chouinard⁴, ¹*Agriculture and Agri-Food Canada, Dairy and Swine Research and Development Centre, Sherbrooke, Quebec, Canada*, ²*Agriculture and Agri-Food Canada, Lethbridge, Alberta, Canada*, ³*Agriculture and Agri-Food Canada, Semiarid Prairie Agricultural Research Centre, Swift Current, Saskatchewan, Canada*, ⁴*Laval University, Quebec, Quebec, Canada*.
- T211 The effects of long-term lipid supplementation on milk production traits and metabolic profile in dairy goats. G. Battacone^{*1}, A. Nudda¹, P. Nicolussi², A. H. D. Francesconi¹, P. Bonelli², and G. Pulina^{1,3}, ¹*Dipartimento di Scienze Zootecniche, University of Sassari, Italy*, ²*Istituto Zooprofilattico Sperimentale della Sardegna, Sassari, Italy*, ³*AGRIS Sardegna, Olmedo Loc. Bonassai, Sassari, Italy*.
- T212 Effects of feeding whole linseed to Lacaune dairy ewes on lactational performances and CLA and N3 fatty acids content of the milk. R. Casals, M. V. Pol, E. Albanell, X. Such, M. A. Bouattour^{*}, and G. Caja, *Universitat Autònoma de Barcelona, Bellaterra, Spain*.
- T213 Effects of high oil corn (HOC) grain supplementation on milk production and plasma metabolites in grazing dairy cows. F. Luparia, D. A. Garcarena, C. A. Cangiano, and G. A. Gagliostro^{*}, *Instituto Nacional de Tecnología Agropecuaria, INTA, Balcarce, Buenos Aires, Argentina*.
- T214 Effects of high oil corn (HOC) on milk fatty acid composition in grazing dairy cows in early lactation. F. Luparia¹, P. Pellegrini², A. Rodríguez¹, D. A. Garcarena², and G. A. Gagliostro^{*1}, ¹*Instituto Nacional de Tecnología Agropecuaria, INTA, Balcarce, Buenos Aires, Argentina*, ²*Instituto Nacional de Tecnología Industrial, INTI, Buenos Aires, Argentina*.
- T215 Effects of dietary docosahexaenoic acid and free linoleic acid supplementation on fatty acid ratio in milk fat from dairy cows. S. J. Liu, J. Q. Wang^{*}, D. P. Bu, S. Liang, L. Liu, H. Y. Wei, and L. Y. Zhou, *State Key Laboratory of Animal Nutrition, Institute of Animal Science, Chinese Academy of Agricultural Sciences, Beijing, China*.
- T216 Effects of rumen-protected fat feeding on glucose metabolism in high-yielding dairy cows. H. M. Hammon^{*}, A. K. Langhof, K. Duske, F. Schneider, and C. C. Metges, *Research Institute for the Biology of Farm Animals (FBN), Dummerstorf, Germany*.
- T217 Feeding rumen-protected fat (RPF) during the dry period: Effects on milk production and glucose metabolism in high-yielding dairy cows. H. M. Hammon^{*}, K. Duske, A. K. Langhof, F. Schneider, H. M. Seyfert, and C. C. Metges, *Research Institute for the Biology of Farm Animals (FBN), Dummerstorf, Germany*.
- T218 Influence of sunflower oil supplementation on milk conjugated linoleic acid and mammary tissue stearoyl-CoA desaturase, lipoprotein lipase, and acetyl-CoA carboxylase gene expression in Xinong Saanen goats. D. P. Bu¹, J. Q. Wang^{*1}, H. Y. Wei¹, L. Y. Zhou¹, and J. J. Loo², ¹*Institute of Animal Science, Chinese Academy of Agricultural Sciences; State Key Laboratory of Animal Nutrition, Beijing, China*, ²*University of Illinois, Urbana*.
- T219 Feed intake, apparent digestibility, and milk composition of dairy cows fed whole flaxseed or/and Ca-salts of flaxseed oil. C. Côrtes^{*1}, D. C. Silva^{1,2}, R. Kazama^{1,2}, N. Gagnon¹, C. Benchaar¹, G. T. Santos², L. M. Zeoula², and H. V. Petit¹, ¹*Agriculture and Agri-Food Canada, Sherbrooke, Quebec, Canada*, ²*Universidade Estadual de Maringá Brazil and CNPq Brazil, Maringá, Paraná, Brazil*.
- T220 Effect of dietary flax products on concentration of the mammalian flax lignan, enterolactone, in ruminal fluid, plasma, milk, and urine of dairy cows. N. Gagnon^{*1}, C. Côrtes¹, D. C. da Silva^{1,2}, R. Kazama^{1,2}, G. T. dos Santos², L. M. Zeoula², and H. V. Petit¹, ¹*Agriculture and Agri-Food, Sherbrooke, QC, Canada*, ²*Universidade Estadual de Maringá, Brazil, CNPq Brazil*.
- T221 Effect of four levels of lauric acid on ruminal protozoa, milk production and composition in dairy cows. A. P. Faciola^{*1}, G. A. Broderick², A. N. Hristov³, and J. A. Pires¹, ¹*University of Wisconsin, Madison*, ²*U. S. Dairy Forage Research Center, Madison, WI*, ³*Penn State University, University Park*.
- T222 Effects of differential supplementation of calcium salts of fatty acids (CSFAs) on dairy cows. F. T. Silvestre^{*}, T. S. M. Carvalho, J. E. P. Santos, C. R. Staples, and W. W. Thatcher, *University of Florida, Gainesville*.
- T223 Effects of rumen protected CLA supplemented to dairy cows in late pregnancy and early lactation on milk yield and some milk features. G. Bertoni^{*}, E. Trevisi, M. G. Maiani, and A. Gubbiotti, *Istituto Di Zootecnica, Università Cattolica Del Sacro Cuore, Piacenza, Italy*.
- T224 Energy balance indexes and blood changes of dairy cows supplemented with rumen protected CLA in late pregnancy and early lactation. E. Trevisi^{*}, A. Ferrari, F. Piccioli-Cappelli, and G. Bertoni, *Istituto Di Zootecnica, Università Cattolica Del Sacro Cuore, Piacenza, Italy*.
- T225 Effect of different levels of fish oil and canola oil on milk production and composition of high producing Holstein dairy cows in early lactation. T. Vafa^{*}, A. Naserian, A. Heravi Moussavi, M. Danesh Mesgaran, and R. Valizadeh, *Ferdowsi University of Mashhad, Mashhad, Khorasan Razavi, Iran*.
- T226 Effects of degree of unsaturation of supplemental dietary fat on ruminal fermentation, nitrogen metabolism, and urea nitrogen recycling in dairy cows. T. Mutsvangwa^{*}, G. N. Gozho, and D. Kiran, *University of Saskatchewan, Saskatoon, Saskatchewan, Canada*.
- T227 Influence of dietary fats on hepatic gene expression in transition dairy goats. A. Agazzi¹, G. Invernizzi^{*1}, A. Campagnoli¹, M. Ferroni¹, A. Galmozzi², M. Crestani², and G. Savoini¹, ¹*Department of Veterinary Science and Technology for Food Safety, Milan, Italy*, ²*Department of Pharmacological Sciences, Milan, Italy*.

- T228 Reproductive performance of cows fed rolled flaxseed on two commercial dairies. N. R. Bork*¹, G. P. Lardy¹, J. W. Schroeder¹, K. A. Vonnahme¹, P. M. Fricke³, K. B. Koch², M. L. Bauer¹, and K. G. Odde¹, ¹North Dakota State University, Fargo, ²Northern Crops Institute, Fargo, ND, ³University of Wisconsin, Madison.

Ruminant Nutrition Methods, Models and Other Exhibit Hall CDE

- T229 Measurements of net portal flux of nitrogen (N) compounds in ruminants: First step of a meta-analysis. R. Martineau*¹, I. Ortigues-Marty², J. Vernet², and H. Lapiere¹, ¹Agriculture and Agri-Food Canada, Sherbrooke, Quebec, Canada, ²Institut National de la Recherche Agronomique, Theix, St Genès Champanelle, France.
- T230 Diversity of rumen bacteria as revealed by multivariate analysis of 16S rDNA gene sequences. K. L. Liu¹, J. Q. Wang*¹, D. P. Bu¹, S. G. Zhao^{1,2}, H. Y. Wei¹, and L. Y. Zhou¹, ¹State Key Laboratory of Animal Nutrition, Institute of Animal Science, Chinese Academy of Agricultural Sciences, Beijing, China, ²Gansu Agricultural University, Gansu, China.
- T231 Screening of ureases from a bovine rumen metagenomic library. K. L. Liu¹, J. Q. Wang*¹, D. P. Bu¹, S. G. Zhao^{1,2}, Y. X. Zhu³, H. Y. Wei¹, L. Y. Zhou¹, and Z. Y. Dong³, ¹State Key Laboratory of Animal Nutrition, Institute of Animal Science, Chinese Academy of Agricultural Sciences, Beijing, China, ²Gansu Agricultural University, Gansu, China, ³State Key Laboratory of Microbial Resources, Institute of Microbiology, Chinese Academy of Sciences, Beijing, China.
- T232 Effect of fatty acids and malic acid on total gas production and methane release by batch culture. L. Liu, J. Q. Wang*, D. P. Bu, S. J. Liu, K. L. Liu, H. Y. Wei, and L. Y. Zhou, State Key Laboratory of Animal Nutrition, Institute of Animal Science, Chinese Academy of Agricultural Sciences, Beijing, China.
- T233 The use of simultaneous models for estimate *in vivo* nutrient digestibility of alfalfa hay and barley grain. H. Jahani-Azizabadi, M. Danesh Mesgaran*, R. Valizadeh, and H. Nasirimoghadam, Ferdowsi University of Mashhad, Mashhad, Iran.
- T234 *In situ* ruminal degradability of soybean and sunflower by-products. R. H. de T. Buschinelli de Goes*¹, R. de C. M. Tramontini², G. D. de Almeida², S. T. Cardim², J. Ribeiro², L. A. de Oliveira², and F. Morotti², ¹Universidade Federal da Grande Dourados, Dourados, MS, Brazil, ²Universidade Estadual de Maringá, Umuarama, PR, Brazil.
- T235 Rumen phosphorus metabolism in sheep. R. S. Dias¹, T. Soares², R. M. P. Pardo³, J. C. Silva Filho³, D. M. S. S. Vitti², E. Kebreab*⁴, and J. France¹, ¹University of Guelph, Guelph, Ontario, Canada, ²Centro de Energia Nuclear na Agricultura, Piracicaba, Sao Paulo, Brazil, ³Federal University of Lavras, Lavras, Minas Gerais, Brazil, ⁴University of Manitoba, Winnipeg, Manitoba, Canada.
- T236 Evaluation of modeling procedure for fitting *in situ* degradation profiles. G. I. Zanton* and A. J. Heinrichs, The Pennsylvania State University, University Park.
- T237 Assessment of free amino acid supplementation on rumen microbial efficiency and nitrogen metabolism using a continuous culture system. M. A. Brooks*, J. H. Porter, and M. S. Kerley, University of Missouri, Columbia.
- T238 Effect of pH on rumen fermentation and biohydrogenation of extruded soybean and linseed fatty acids in continuous culture. M. C. Fuentes*¹, S. Calsamiglia¹, V. Fievez², and M. Blanch¹, ¹UAB, Bellaterra, Spain, ²Ghent University, Belgium.
- T239 Effect of pH and level of concentrate in the diet on biohydrogenation intermediates in a dual flow continuous culture. M. C. Fuentes*, S. Calsamiglia, and P. W. Cardozo, UAB, Bellaterra, Spain.
- T240 Comparison of *in vitro*, *in situ*, and *in vivo* methodologies to assess nutrient digestibility in ruminants. L. E. Sims*¹, N. A. Pyatt², P. H. Doane², and S. S. Block², ¹Oklahoma State University, Stillwater, ²ADM Research Center, Decatur, IN.
- T241 Effect of an enzymatic extract from *Agaricus bisporus* on *in vitro* digestibility of cell wall and dry matter. A. Ayala-Martinez*¹, S. S. Gonzalez-Muñoz², C. Vazquez-Gonzalez¹, G. Mendoza-Martinez³, M. Meneses-Mayo², and O. Loera-Corral⁴, ¹FMVZ-UNAM, Mexico D.F., ²Colegio de Postgraduados, Montecillo, Edo. Mexico, Mexico, ³UAM Xochimilco, Mexico D.F., ⁴UAM Iztapalapa, Mexico D.F.
- T242 *In situ* dry matter degradation parameters of treated and untreated Sainfoin (*Onobrichis viciifolia*) a tanniferous legume forage. H. Khalilvandi*, K. RezaYazdi, M. Dehgan-Banadaki, N. Vahdani, and H. R. Khazanehei, University of Tehran, Karaj, Tehran, Iran.
- T243 Accuracy of the n-alkanes technique for intake estimates in beef cattle fed with palisade grass (*Brachiaria brizantha* cv. Marandu). J. A. S. Morais¹, T. T. Berchielli¹, M. F. S. Queiroz*¹, A. Keli², A. de Vega², R. A. Reis¹, C. López², S. F. Souza¹, and G. Fiorentini¹, ¹Faculdade de Ciências Agrárias e Veterinárias/UNESP, Jaboticabal, São Paulo, Brazil, ²Facultad de Veterinaria, Universidad de Zaragoza, Zaragoza, Spain.
- T244 The effect of non fibre carbohydrate on *in vitro* first order NDF disappearance of alfalfa. M. Danesh Mesgaran*, F. Rezaei, and A. R. Heravi Mousavi, Ferdowsi University of Mashhad, Mashhad, Iran.

- T245 Ruminant and post-ruminal protein disappearance of high oil sunflower meal treated with formaldehyde or sodium hydroxide. T. Mohammadabadi, M. Danesh Mesgaran*, and M. R. Nasiri, *Excellence Center for Animal Science, Ferdowsi University of Mashhad, Mashhad, Iran.*
- T246 The effect of feed iodine supplementation on milk production traits in dairy goats. A. Nudda*¹, M. Decandia², G. Epifani², G. Battacone¹, G. Spanu¹, and G. Pulina^{1,2}, ¹University of Sassari, Sassari, Italy, ²AGRIS Sardegna, Sassari, Italy.
- T247 An examination of the intake and digestibility characteristics of ground ear maize for beef cattle. P. O'Hanlon, D. A. Kenny, T. M. Boland, G. P. Keane, and M. B. Lynch*, *UCD School of Agriculture, Food Science and Veterinary Medicine, University College Dublin, Ireland.*
- T248 Comparison of procedures to detach particle-associated microbes from ruminal digesta in Rusitec fermenters. M. E. Martínez, M. J. Ranilla*, S. Ramos, M. L. Tejido, C. Saro, and M. D. Carro, *Universidad De LeÓN, Campus De Vegazana, León, Spain.*
- T249 Effects of varying levels of fish oil, fed as a calcium salt, on rumen fermentation and biohydrogenation in continuous culture. C. M. Klein*¹, T. C. Jenkins¹, and K. D. Murphy², ¹Clemson University, Clemson, ²Virtus Nutrition, Lancaster, PA.
- T250 By-product of biofuels processing in the feeding of ruminant. J. A. G. Azevedo^{1,2}, D. S. Pina², N. K. P. Souza², J. C. M. Lima², A. S. Oliveira², C. V. Xavier², S. C. Valadares Filho², and H. J. Fernandes*^{3,2}, ¹Universidade Estadual de Santa Cruz - FAPESB, Ilhéus, Bahia, Brazil, ²Universidade Federal de Viçosa, Viçosa, Minas Gerais, Brazil, ³Universidade Estadual do Mato Grosso do Sul - FUNDECT, Brazil.
- T251 *In vitro* gas production kinetics of biofuels by-products. J. A. G. Azevedo^{1,2}, D. S. Pina², J. C. M. Lima², N. K. P. Souza², C.V. Xavier², A. S. Oliveira², S. C. Valadares Filho², and H. J. Fernandes*^{3,2}, ¹Universidade Estadual de Santa Cruz, Ilheus, Bahia, Brazil, ²Universidade Federal de Viçosa, Viçosa, Minas Gerais, Brazil, ³Universidade Estadual do Mato Grosso do Sul - FUNDECT, Brazil.
- T252 Bacterial diversity in rumen fluid samples collected via oral lavage or rumen cannula. J. Pisel, S. L. Lodge-Ivey*, J. Browne-Silva, and M. B. Horvath, *New Mexico State University, Las Cruces.*
- T253 Image analysis and microscopy in animal by-products characterization. A. Campagnoli, C. Paltanin, L. Maggioni, G. Savoini, V. Dell'Orto, F. Cheli, and L. Pinotti*, *Department of Veterinary Sciences and Technology for Food Safety, Veterinary Medicine Faculty, Milan, Italy.*
- T254 Influence of a diet enriched in extruded linseed on fatty acid composition of goat cheese. A. Nudda*¹, G. Battacone¹, M. Addis², A. Pirisi², A. Mazza¹, and G. Pulina^{1,2}, ¹University of Sassari, Sassari, Italy, ²AGRIS Sardegna, Sassari, Italy.
- T255 Relationship between vaccenic acid content of ruminal bacteria and duodenal bacteria. S. J. Liu, J. Q. Wang*, D. P. Bu, S. Liang, L. Liu, H. Y. Wei, L. Y. Zhou, and K. L. Liu, *State Key Laboratory of Animal Nutrition, Institute of Animal Science, Chinese Academy of Agricultural Sciences, Beijing, China.*
- T256 Isolation of prominent lipolytic rumen bacteria. N. A. Krueger*, R. C. Anderson, T. R. Callaway, T. S. Edrington, and D. J. Nisbet, *USDA, ARS, Food and Feed Safety Research Unit, College Station, TX.*
- T257 Biohydrogenation of vaccenic-1-¹³C acid by ruminal microbes *in vitro*. E. E. Mosley* and M. A. McGuire, *University of Idaho, Moscow.*
- T258 Withdrawn by author.
- T259 Use of inter-organ glycerol fluxes to assess abdominal versus peripheral fat mobilization in transition dairy cows. M. Larsen and N. B. Kristensen*, *University of Aarhus, Tjele, Denmark.*
- T260 Correlation between UT-B mRNA abundance in ruminal epithelium and net portal flux of urea in transition dairy cows. B. A. Røjen*, P. K. Theil, M. Larsen, and N. B. Kristensen, *Faculty of Agricultural Sciences, University of Aarhus, Tjele, Denmark.*
- T261 Hepatic metabolism of alcohols in freshening Holstein cows. B. M. L. Raun* and N. B. Kristensen, *Faculty of Agricultural Sciences, University of Aarhus, Tjele, Denmark.*
- T262 Use of ARISA to monitor shifts in rumen microbial populations caused by changes in diet. S. E. Stebulis*¹, D. M. Stevenson², G. J. M. Rosa¹, and R. R. Grummer¹, ¹University of Wisconsin, Madison, ²USDA-ARS-US Dairy Forage Research Center, Madison, WI.
- T263 Evaluation of n-alkanes, chromic oxide and lignin as indigestible markers to estimate duodenal and fecal flows in lactating dairy cows. S. O. Juchem*¹, E. J. DePeters¹, J. M. Heguy¹, S. J. Taylor¹, and J. E. P. Santos², ¹University of California, Davis, ²University of Florida, Gainesville.
- T264 The use of flow cytometry to assess rumen bacteria in dairy heifers limit fed different forage to concentrate ratios with *Saccharomyces cerevisiae*. G. J. Lascano* and A. J. Heinrichs, *The Pennsylvania State University, University Park.*
- T265 Updates to the Cornell Net Carbohydrate and Protein System: Effects of changes in feed digestion rates and passage rate assignments on metabolizable energy and protein predictions. E. B. Recktenwald*, D. A. Ross, T. R. Overton, L. E. Chase, P. Huhtanen, and M. E. Van Amburgh, *Cornell University, Ithaca, NY.*

- T266 Dynamics of ruminal fiber digestion of corn milling co-products. L. O. Tedeschi¹, P. J. Kononoff², K. Karges³, and M. L. Gibson³, ¹Texas A&M University, College Station, ²University of Nebraska, Lincoln, ³Dakota Gold Research Association, Sioux Falls, SD.
- T267 Development of a mechanistic model to predict feed intake in domestic and wild ruminants of various physiological states. T. Hackmann* and J. N. Spain, University of Missouri, Columbia.
- T295 Use of the mobile nylon bag method to determine phosphorus disappearance in common dairy cattle ration ingredients. N. M. Cherry^{*1}, B. D. Lambert^{1,2}, and J. P. Muir¹, ¹Texas AgriLife Research, Stephenville, TX, ²Tarleton State University, Stephenville, TX.

Small Ruminant Goats Exhibit Hall CDE

- T268 Evaluation of the FAMACHA® system, fecal egg counts, hematocrits and weight of sheep and goats associated with parasitism fed varying levels of herbs and protein/energy grain. H. A. Swartz^{*1}, A. Stewart¹, D. Sommerer¹, F. Wulff¹, and M. Ellersieck², ¹Lincoln University, Jefferson City, MO, ²University of Missouri, Columbia.
- T269 The effect of garlic on *Haemonchus contortus* infection in goats. Z. Wang*, E. Loetz, A. L. Goetsch, S. P. Hart, and T. Sahl, American Institute for Goat Research, Langston University, Langston, OK.
- T270 Efficacy of wormwoods (*Artimesia* spp.) as an anthelmintic in goats. S. P. Hart^{*1}, J. F. S. Ferreira², and Z. Wang¹, ¹American Institute for Goat Research, Langston University, Langston, OK, ²Appalachian Farming Systems Research Center, USDA-ARS, Beaver, WV.
- T271 Influence of *Sericea lespedeza* pellets on gastrointestinal parasite fecal egg counts in goats. N. C. Whitley^{*1}, T. H. Terrill², J. E. Miller³, J. M. Burke⁴, and M. C. Gooden¹, ¹University of Maryland Eastern Shore, Princess Anne, ²Fort Valley State University, Fort Valley, GA, ³Louisiana State University, Baton Rouge, ⁴USDA-ARS-DBSFR, Booneville, AR.
- T272 Effect of somatic cell count in goat milk on yield and sensory quality of semi-hard cheese. S. S. Chen^{1,2}, L. Zhang^{1,3}, B. Bah¹, and S. S. Zeng^{*1}, ¹American Institute for Goat Research, Langston University, Langston, OK, ²College of Food Science & Nutritional Engineering, China Agricultural University, Beijing, China, ³Northeast Agricultural Research Center of China, Changchun, China.
- T273 Replacement of coastcross hay by soybean hulls in lactating dairy goat diets. R. S. Gentil*, C. Q. Mendes, I. Susin, A. V. Pires, G. H. Rodrigues, F. S. Urano, E. M. Ferreira, R. C. Amaral, and M. F. Ribeiro, Escola Superior de Agricultura Luiz de Queiroz (ESALQ)/University of São Paulo (USP), Piracicaba, SP, Brazil.
- T274 Classification tree analysis of grazing behavior in goats. T. A. Gipson*, A. R. Askar, A. Beker, R. Puchala, A. Asmare, G. D. Detweiler, and A. L. Goetsch, American Institute for Goat Research, Langston University, Langston, OK.
- T275 Integration of meat goat production into pine silvopasture. R. C. Lawler^{*1}, N. K. Gurung¹, M. S. Goodman², and O. Bolden-Tiller¹, ¹Tuskegee University, Tuskegee, AL, ²Auburn University, Auburn, AL.
- T276 Mineral requirements for growth of Moxoto goats grazing in the semi-arid region of Brazil. M. J. Araújo¹, A. N. Medeiros¹, S. Gonzaga Neto¹, R. G. Costa¹, I. A. M. A. Teixeira^{*2}, K. T. Resende², C. A. T. Marques¹, G. M. P. Melo², and S. F. Souza¹, ¹Universidade Federal da Paraíba/UFPB, Areia, PB, Brazil, ²Universidade Estadual Paulista/UNESP, Jaboticabal, SP, Brazil.
- T277 Mineral requirements of Saanen growing kids. K. T. Resende^{*1}, D. Oliveira¹, I. A. M. A. Teixeira¹, A. N. Medeiros², and A. C. D. Ferreira³, ¹Universidade Estadual Paulista/Unesp, Jaboticabal, SP, Brazil, ²Universidade Federal da Paraíba, Areia, PB, Brazil, ³Universidade Federal do Sergipe, Aracaju, SE, Brazil.
- T278 Effects of induced copper deficiency with added molybdenum on health and immune responses of male goat kids. S. Solaiman, S. Roper, K. Beguesse*, G. Reddy, N. Gurung, and K. Copedge, Tuskegee University, Tuskegee, AL.
- T279 Effects of synchronizing the release of energy and nitrogen in the rumen on nitrogenous flow at the duodenum of cashmere goats. D. P. Bu^{2,1}, D. X. Lu^{*2}, W. Cui⁴, J. Loo³, and J. Q. Wang¹, ¹Chinese Academy of Agricultural Sciences, Beijing, P. R. China, ²Inner Mongolia Agricultural Science And Technology, Hohhot, P. R. China, ³University of Illinois, Urbana, ⁴Ningxia University, Yinchun, P. R. China.
- T280 Effects of protein and energy supplementation on *in situ* disappearance of low-quality Coastal Bermudagrass hay in goats. M. S. Reinhard^{*1}, B. D. Lambert^{1,2}, J. P. Muir², and R. Harp¹, ¹Tarleton State University, Stephenville, TX, ²Texas AgriLife Research, Stephenville, TX.
- T281 Energy requirements for maintenance and growth of Boer crossbred kids. I. A. M. A. Teixeira^{*1}, K. T. Resende¹, J. M. Pereira Filho², R. C. Canesin¹, and T. T. Berchielli¹, ¹Universidade Estadual Paulista/Unesp, Jaboticabal, SP, Brazil, ²Universidade Federal de Campina Grande, Patos, PB, Brazil.
- T282 Effects of acclimatization on energy expenditure by meat goats. A. K. Patra, R. Puchala, G. Animut, T. A. Gipson, T. Sahl, and A. L. Goetsch*, American Institute for Goat Research, Langston University, Langston, OK.

- T283 Effect of length of grower/finisher ration supplementation on chevon production and net return from crossbred meat goats. M. Lema*, S. Kebe, C. Pierfax, and N. Adefope, *Tennessee State University, Nashville*.
- T284 Pelleted soybean hulls or cottonseed and corn as supplements for weanling Boer-cross wethers grazing bermudagrass pastures. M. H. Poore*, J.-M. Luginbuhl, H. M. Glennon, A. D. Shaeffer, and H. A. Deihl, *North Carolina State University, Raleigh*.
- T285 Influence of dietary condensed tannins in meat goats on fatty acid composition of carcasses. J. Lee*, G. Kannan, B. Kouakou, D. Moore, and T. Terrill, *Fort Valley State University, Fort Valley, GA*.
- T286 Effects of long term feed restriction and monensin on growth, feed efficiency and body measurements in Anglo Nubian does. P. Turiello*, V. Coniglio, S. Posadas, M. Chaves, L. Godio, and G. Cufre de Lenardón, *Universidad Nacional de Río Cuarto, Río Cuarto, Córdoba, Argentina*.

Teaching/Undergraduate and Graduate Education
Teaching in the Animal Sciences
Exhibit Hall CDE

- T287 Use of an informal taste panel to teach students concepts related to beef palatability. J. A. Daniel*¹ and T. D. Pringle², ¹*Berry College, Mount Berry, GA*, ²*University of Georgia, Athens*.
- T288 Student demographic profile for Mississippi State University riding courses. M. Nicodemus*, *Mississippi State University, Mississippi State*.
- T289 Developing an internet-based course on milk and dairy products. A. D. Fogleman*, C. R. Summers, H. J. Hickman, L. G. Turner, and J. C. Allen, *North Carolina State University, Raleigh*.
- T290 Species preference of incoming animal science freshmen at North Carolina State University. J. A. Moore*, W. L. Flowers, and R. L. McCraw, *North Carolina State University, Raleigh*.
- T291 Changes in species preference reported by animal science graduating seniors at North Carolina State University. J. A. Moore*, W. L. Flowers, and R. L. McCraw, *North Carolina State University, Raleigh*.
- T292 Equine internships: Factors that predict success. K. Bennett-Wimbush*, *Ohio State Agricultural Technical Institute, Wooster*.
- T293 Technical note: Equine gastrointestinal tract preservation techniques to enhance teaching effectiveness. B. T. Gutierrez* and J. S. Pendergraft, *Sul Ross State University, Alpine, TX*.
- T294 Impact of a herpes (EHV-1) outbreak on incoming equestrian students, horse numbers and outside generated revenue at The University of Findlay. E. D. Bonnette*, F. D. McCarthy, and R. Koehler, *The University of Findlay, Findlay, OH*.

SYMPOSIA AND ORAL SESSIONS
Animal Health I
Chair: KC Olson, Kansas State University
206

- 9:30 AM 1 Obesity in horses: An equine metabolic syndrome? P. J. Johnson*, V. K. Ganjam, and N. T. Messer, *University of Missouri, Columbia*.
- 10:30 AM 2 Steers grazing toxic *Neotyphodium coenophialum*-infected forages have increased hepatic gluconeogenic capacity. K. R. Brown*¹, J. L. Klotz², J. R. Strickland², L. P. Bush¹, J. A. Boling¹, and J. C. Matthews¹, ¹*University of Kentucky, Lexington*, ²*Forage-Animal Production Research Unit, USDA-ARS, Lexington, KY*.
- 10:45 AM 3 Grazing endophyte-infected tall fescue alters serotonin receptor-induced contractility of bovine lateral saphenous veins. J. L. Klotz*¹, K. R. Brown², Y. Xue², J. C. Matthews², J. A. Boling², L. P. Bush², and J. R. Strickland¹, ¹*USDA-ARS, FAPRU, Lexington, KY*, ²*University of Kentucky, Lexington*.

SYMPOSIUM
Beef Species
The Evolution of Beef Cattle Genetic Evaluation
Chair: Darrh Bullock, University of Kentucky
Sponsor: National Beef Cattle Consortium
Sagamore Ballroom 2

- 9:30 AM 4 Milestones in beef cattle genetic evaluation. L. L. Benyshek*, *University of Georgia, Athens.*
- 10:00 AM 5 Producing and using genetic evaluations in today's beef industry. D. Garrick*, *Iowa State University, Ames.*
- 10:30 AM 6 DNA technology: Estimation of genetic merit from large DNA marker panels. R. L. Fernando*¹ and C. Stricker², *¹Iowa State University, Ames, ²Applied Genetics Network, Davos, Switzerland.*
- 11:00 AM 7 Integrating genetic evaluations with DNA technologies for the ultimate selection tool. R. J. Tempelman*¹ and S. D. Kachman², *¹Michigan State University, East Lansing, ²University of Nebraska, Lincoln.*
- 11:30 AM Panel Discussion – Industry Applications of Beef Genetic Evaluation. J. Pollak, *Cornell University*, Moderator.

Breeding and Genetics
Current Issues in Dairy Cattle Breeding
Chair: Filippo Miglior, Agriculture and Agri-Food Canada
Sagamore Ballroom 6

- 9:30 AM 8 Improved accuracy of computer programs that optimize breeding and replacement decisions for dairy cattle. A. De Vries*, *University of Florida, Gainesville.*
- 9:45 AM 9 Genetic analysis of profitability of Canadian Holstein cows. J. Bohmanova*¹, J. Jamrozik¹, K. Hand², D. Lazenby², and F. Miglior^{3,4}, *¹CGIL, University of Guelph, Guelph, ON, Canada, ²CanWest DHI, Guelph, ON, Canada, ³Dairy and Swine Research and Development Centre, Agriculture and Agri-Food Canada, Sherbrooke, QC, Canada, ⁴Canadian Dairy Network, Guelph, ON, Canada.*
- 10:00 AM 10 Alternatives for evaluating daughter performance of progeny-test bulls between official evaluations. H. D. Norman*¹, J. R. Wright¹, and K. A. Weigel², *¹Animal Improvement Programs Laboratory, ARS, USDA, Beltsville, MD, ²University of Wisconsin, Madison.*
- 10:15 AM 11 Comparison of herds that currently supply young bulls to progeny testing programs with large commercial herds that could serve as dedicated suppliers. A. D. Coburn*^{1,2}, K. A. Weigel¹, S. A. Schnell², and G. Abdel-Azim², *¹University of Wisconsin, Madison, ²Genex Cooperative Inc., Shawano, WI.*
- 10:30 AM 12 Genetic analysis of Canadian dairy cows milked by an automatic milking system. M. Nixon*¹, J. Bohmanova¹, J. Jamrozik¹, L. R. Schaeffer¹, G. Mason¹, J. Rodenburg², F. Miglior^{3,4}, and K. Hand⁵, *¹University of Guelph, Guelph, ON, Canada, ²Ontario Ministry of Food, Agriculture and Rural Affairs, Woodstock, ON, Canada, ³Agriculture and Agri-Food Canada, Sherbrooke, QC, Canada, ⁴Canadian Dairy Network, Guelph, ON, Canada, ⁵CanWest DHI, Guelph, ON, Canada.*
- 10:45 AM 13 Impact of selection for decreased somatic cell score on productive life and culling for mastitis. H. D. Norman*, R. H. Miller, and J. R. Wright, *Animal Improvement Programs Laboratory, ARS, USDA, Beltsville, MD.*
- 11:00 AM Break
- 11:15 AM 14 Derivation of factors to estimate daily yield from single milkings for Holsteins milked two or three times daily. M. M. Schutz*¹, J. M. Bewley¹, and H. D. Norman², *¹Purdue University, West Lafayette, IN, ²USDA-ARS, Beltsville, MD.*
- 11:30 AM 15 Genetic correlation of live weight with price and calves' commercial values. R. Dal Zotto*, M. Cassandro, M. Penasa, M. De Marchi, and G. Bittante, *University of Padova, Legnaro, Padova, Italy.*
- 11:45 AM 16 Relationship between milk production and female fertility traits in Holsteins. A. Sewalem*^{1,2}, G. Kistemaker², and F. Miglior^{1,2}, *¹Agriculture and Agri-Food Canada, Dairy and Swine Research and Development Centre, Sherbrooke, Quebec, Canada, ²Canadian Dairy Network, Guelph, ON, Canada.*
- 12:00 PM 17 Genetic correlations between conception rates and test-day milk yields using a threshold-linear random-regression model. S. Tsuruta*¹, I. Misztal¹, C. Huang¹, and T. J. Lawlor², *¹University of Georgia, Athens, ²Holstein Association USA Inc., Brattleboro, VT.*

- 12:15 PM 18 Study on genetic parameters of conception rate and heat detection/expression. C. Huang^{*1}, I. Misztal¹, S. Tsuruta¹, and T. J. Lawlor², ¹University of Georgia, Athens, ²Holstein Association USA Inc., Brattleboro, VT.

Dairy Foods
Dairy Food Chemistry and Microbiology
Chair: Joseph Schlessler, US Food and Drug Administration
120

- 9:30 AM 19 **ADSA Pioneer:** Milk quality – Developments in testing and grading of raw milk. W. S. LaGrange*, *Iowa State University, Ames.*
- 10:00 AM 20 Transglutaminase polymerization of a modified whey protein ingredient. D. A. Clare* and C. R. Daubert, *North Carolina State University, Raleigh.*
- 10:15 AM 21 Production of conjugated linoleic acid in milk by lactic acid bacteria. A. J. Pandit*, S. K. Anand, K. F. Kalscheur, and A. N. Hassan, *South Dakota State University, Brookings.*
- 10:30 AM 22 Immuno-stimulatory AT oligodeoxynucleotide from *Lactobacillus gasseri* requires a specific self-stabilized structure. T. Shimosato^{*1}, M. Tohno², T. Sato³, Y. Kawai², T. Saito², and H. Kitazawa², ¹Shinshu University, Minamiminowa, Nagano, Japan, ²Tohoku University, Sendai, Miyagi, Japan, ³Yokohama City University, Yokohama, Kanagawa, Japan.
- 10:45 AM 23 Complete genome sequence and comparative genome microarray of *Lactobacillus casei* provides evidence for genome expansion and reveals significant intraspecies differences. H. Cai^{*1}, J. R. Broadbent², and J. L. Steele¹, ¹University of Wisconsin, Madison, ²Utah State University, Logan.
- 11:00 AM Break
- 11:15 AM 24 Effect of feeding pasture and long chain omega-3 fatty acid (LCn-3FA) supplements on the composition and oxidative stability of milk & butter. M. C. Rose^{*1}, H. P. V. Rupasinghe¹, S. M. Budge², K. Glover¹, and A. H. Fredeen¹, ¹Nova Scotia Agricultural College, Truro, NS, Canada, ²Dalhousie University, Halifax, NS, Canada.
- 11:30 AM 25 The protective effect of processed cheese against hyperlipidemia in rats. M. H. Abd El-Salam* and D. A. Mohamed, *National Research Centre, Cairo, Giza, Egypt.*
- 11:45 AM 26 Antimicrobial activity of dried spearmint and its extracts for use as soft cheese preservatives. M. Foda¹, M. El-Sayed^{*1}, M. E-Mogazy¹, A. Hassan², and N. Rasmy², ¹National Research Center, Cairo, Egypt, ²Faculty of Agriculture, Cairo, Egypt.
- 12:00 PM 27 Is Levowitz–Weber the appropriate confirmatory stain for direct microscopic somatic cell counting of ovine milk? K. H. Petersson^{*1}, L. Connor¹, C. S. Petersson-Wolfe², and K. A. Rego¹, ¹University of Rhode Island, Kingston, ²Virginia Polytechnic Institute and State University, Blacksburg.

SYMPOSIUM
ESS Program
Horse Genome Toolbox for Animal Science Applications
Chair: Amy Burk, University of Maryland
101–102

- 9:30 AM 28 Exploiting the public genome databases for equine science. L. C. Skow*, *Texas A&M University, College Station.*
- 10:15 AM 29 Identification of genes for health and performance traits in horses through whole genome analysis. J. Mickelson*, *University of Minnesota, St Paul.*
- 11:00 AM 30 Transcriptional profiling for gene expression analyses of equine samples. J. N. MacLeod*, *University of Kentucky, Lexington.*
- 11:45 AM 31 Let the genome give your project a leg-up: Real-time qPCR strategies in equine research. S. Brooks*, *Cornell University, Ithaca, NY.*

SYMPOSIUM
Extension Education
Has the Land-Grant College Left the Farm?
Chair: Robert Weaver, University of Missouri
109-110

| | | |
|----------|----|--|
| 9:30 AM | 32 | Why there is less applied agricultural research conducted at Land-Grant colleges. R. L. Plain*, <i>University of Missouri, Columbia.</i> |
| 10:15 AM | 33 | What I did when I had an extension\research appointment and what I do now: How times have changed. R. L. Nebel*, <i>Select Sires Inc., Plain City, OH.</i> |
| 10:45 AM | 34 | Serving the Beef Industry by re-defining your comfort zone. M. Siemens*, <i>Cargill Meat Solutions, Wichita, KS.</i> |
| 11:15 AM | 35 | A transition from extension-research to industry swine genetics. W. O. Herring*, <i>Smithfield Premium Genetics Group, Rose Hill, NC.</i> |
| 11:45 AM | 36 | Why our farm is supporting MS research programs for the University of Illinois. B. F. Wolter*, <i>The Maschhoffs Inc., Carlyle, IL.</i> |
| 12:15 PM | | Discussion. |

SYMPOSIUM
Forages and Pastures
Fiber Fermentation: Influence of Supplemental Nonstructural Carbohydrates
Chair: Marie Krause, West Virginia University
Sponsor: Mycogen
103

| | | |
|----------|----|--|
| 9:30 AM | 37 | Factors affecting activity of cellulolytic microbes in the rumen. P. J. Weimer* ^{1,2} , ¹ <i>USDA-ARS, Madison, WI</i> , ² <i>University of Wisconsin, Madison.</i> |
| 10:15 AM | 38 | The source and degradability of dietary starch influences forage and fiber utilization by lactating dairy cows. D. P. Casper*, D. Schauff, D. Kleinschmit, D. Jones, E. Lanka, and G. Ayangbile, <i>Agri-King, Inc., Fulton, IL.</i> |
| 11:00 AM | 39 | Manipulation of rumen microflora to improve ruminant production. R. J. Forster*, K. A. Beauchemin, and S. Ohene-Adjei, <i>Agriculture and Agri-Food Canada, Lethbridge, AB, Canada.</i> |

Graduate Student Paper Competition
ADSA Dairy Foods
Chair: Nagendra Shah, Victoria University
121

| | | |
|----------|----|--|
| 9:30 AM | 40 | Effects of sucrose on the foaming and interfacial properties of whey protein isolate and egg white protein mixtures. X. Yang* ^{1,2} , T. K. Berry ^{1,2} , and E. A. Foegeding ^{1,2} , ¹ <i>North Carolina State University, Raleigh</i> , ² <i>Southeast Dairy Foods Research Center, Raleigh, NC.</i> |
| 9:45 AM | 41 | Rheological and chemopreventive properties of milk fermented with exopolysaccharide-producing lactic cultures. D. H. Purohit*, A. N. Hassan, E. Bhatia, and C. Dwivedi, <i>South Dakota State University, Brookings.</i> |
| 10:00 AM | 42 | Effect of different types of emulsifiers on the functional properties of low-fat process cheese. E. M. Salim* ¹ , S. Govindasamy-Lucey ² , M. E. Johnson ² , and J. A. Lucey ¹ , ¹ <i>University of Wisconsin, Madison</i> , ² <i>Wisconsin Center for Dairy Research, Madison, WI.</i> |
| 10:15 AM | 43 | Manufacture and characterization of whey protein concentrate from microfiltration of milk. H. S. Somni* and V. V. Mistry, <i>South Dakota State University, Brookings.</i> |
| 10:30 AM | 44 | Transport of glucose by <i>Bifidobacterium animalis</i> ssp. <i>lactis</i> occurs via facilitated diffusion. E. P. Briczinski*, A. T. Phillips, and R. F. Roberts, <i>The Pennsylvania State University, University Park.</i> |
| 10:45 AM | 45 | Characterizing stress responses of bifidobacteria strains of industrial importance. A. K. Abdalla* ^{1,2} , M. A. Mohran ¹ , S. C. Ingham ² , J. R. Broadbent ³ , and J. L. Steele ² , ¹ <i>Assiut University, Assiut, Egypt</i> , ² <i>University of Wisconsin, Madison</i> , ³ <i>Utah State University, Logan.</i> |

- 11:00 AM 46 Growth substrates for non starter lactic acid bacteria. Biochemistry and transcriptional profile of *Lactobacillus casei* ATCC 334 in a Cheddar cheese model system. M. Budinich*¹, I. Diaz-Muniz¹, H. Cai¹, V. Smeianov¹, J. Broadbent², and J. Steele¹, ¹University of Wisconsin, Madison, ²Utah State University, Logan.
- 11:15 AM 47 Production of conjugated linoleic acid in cheese slurry by lactic acid bacteria. A. J. Pandit*, S. K. Anand, A. N. Hassan, and K. F. Kalscheur, *South Dakota State University, Brookings.*
- 11:30 AM 48 Profiling flavor related biochemical changes in cheddar cheese during ripening using infrared spectroscopy. A. Subramanian*, J. Harper, and L. Rodriguez-Saona, *The Ohio State University, Columbus.*
- 11:45 AM 49 Sensory evaluation of reduced fat cheddar cheese fortified with omega-3 fatty acids for oxidized, rancid and fishy flavor attributes. J. E. Thurgood*^{1,2}, C. Brothersen^{1,2}, S. Martini^{1,2}, and D. J. McMahon^{1,2}, ¹Utah State University, Logan, ²Western Dairy Center, Logan, UT.

Graduate Student Paper Competition
ADSA Production Division
Chair: Howard Tyler, Iowa State University
204

- 9:30 AM 50 Osteopontin immunoreactivity in peripheral blood mononuclear cells, ileum, and ileocecal lymph node of dairy cows naturally infected with *Mycobacterium avium* subsp. *paratuberculosis*. E. L. Karcher*¹, C. S. Johnson¹, J. P. Bannantine², D. C. Beitz¹, and J. R. Stabel², ¹Iowa State University, Ames, ²USDA-ARS, National Animal Disease Center, Ames, IA.
- 9:45 AM 51 Effect of linoleic acid and dietary vitamin E supplementation on sustained conjugated linoleic acid production in milk fat from dairy cows. A. M. O'Donnell*, N. S. Mittelman, J. L. Capper, and D. E. Bauman, *Cornell University, Ithaca, NY.*
- 10:00 AM 52 CD4⁺ and CD8⁺ T cell response in neonatal calves fed *Morinda citrifolia* (Noni). V. J. Brooks*¹, R. G. Godbee², S. F. Peek¹, and B. J. Darien¹, ¹University Wisconsin, Madison, ²University Nevada, Reno.
- 10:15 AM 53 Effects of alfalfa inclusion rate on productivity of lactating dairy cattle fed wet corn gluten feed based diets. C. R. Mullins*¹, K. N. Grigsby², and B. J. Bradford¹, ¹Kansas State University, Manhattan, ²Cargill, Inc., Blair, NE.
- 10:30 AM 54 Diet does not affect putative mammary epithelial stem cells in pre-weaned Holstein heifers. K. M. Daniels*¹, A. V. Capuco², R. E. James¹, M. L. McGilliard¹, and R. M. Akers¹, ¹Virginia Polytechnic Institute and State University, Blacksburg, ²USDA-Agricultural Research Service, Beltsville, MD.
- 10:45 AM 55 Gene expression for enzymes involved with volatile fatty acid and glucose metabolism are affected by the dietary forage-to-concentrate ratio. G. B. Penner*¹, M. Taniguchi¹, L. L. Guan¹, K. A. Beauchemin², and M. Oba¹, ¹University of Alberta, Edmonton, Alberta, Canada, ²Agriculture and Agri-Food Canada, Lethbridge, Alberta, Canada.
- 11:00 AM 56 Lactation performance and amino acid utilization of cows fed increasing amounts of de-oiled dried distillers grains with solubles. K. Mjoun*¹, K. F. Kalscheur¹, A. R. Hippen¹, D. J. Schingoethe¹, and D. E. Little², ¹South Dakota State University, Brookings, ²DairyNet Inc., Brookings, SD.
- 11:15 AM 57 Development of a mechanistic model to predict feed intake in domestic and wild ruminants of various physiological states. T. Hackmann* and J. N. Spain, *University of Missouri, Columbia.*

Graduate Student Paper Competition
ADSA Southern Section
Chair: David R. Winston, Virginia Polytechnic Institute and State University
104

- 9:30 AM 58 Effect of milk replacer composition on growth and rumen development of neonatal Holstein calves. A. J. Bridges*, C. C. Williams, C. F. Hutchison, J. M. Laborde, A. N. Howard, and C. Leonardi, *Louisiana State University, Baton Rouge.*
- 9:45 AM 59 Effects of ThermalCare-D® on efficiency and production of lactating dairy cows during hot weather. J. Boyd*¹, J. W. West¹, J. Bernard¹, and S. Block², ¹University of Georgia, Tifton, ²ADM Research, Decatur, IN.
- 10:00 AM 60 Effect of starch and casein infusions in the abomasum of lactating dairy cows. A. G. Rius*¹, J. A. D. R. N. Appuhamy¹, D. Kirovski², J. Cyriac¹, and M. D. Hanigan¹, ¹Virginia Polytechnic Institute and State University, Blacksburg, ²University of Belgrade, Belgrade, Serbia.

SYMPOSIUM
Meat Science and Muscle Biology
Meat Quality: Regulation of Intramuscular Fat Deposition
Chair: John Stika, Certified Angus Beef LLC
Sponsor: Elanco
Sagamore Ballroom 3

- 9:30 AM 61 The value of marbling in consumer acceptance of beef. L. R. Corah*, *Certified Angus Beef LLC, Wooster, OH.*
- 10:00 AM 62 Renewing the interest on marbling in pork products. C. M. Schultz Kaster*, R. C. Johnson, and J. O. Matthews, *Farmland Foods Inc., Kansas City, MO.*
- 10:30 AM Break
- 10:40 AM 63 Cellular regulation of intramuscular adipose tissue deposition and composition. S. B. Smith*¹, H. Kawachi², C. B. Choi³, C. W. Choi⁴, and J. E. Sawyer¹, ¹*Texas A&M University, College Station*, ²*Kyoto University, Kyoto, Sakyo-ku, Japan*, ³*Yeungnam University, Gyeongsan, Korea*, ⁴*National Institute of Animal Science, Suwon, Korea.*
- 11:10 AM 64 Nutritional regulation of intramuscular fat deposition. J. S. Drouillard* and C. D. Reinhardt, *Kansas State University, Manhattan.*
- 11:40 AM 65 Genetic regulation of intramuscular fat deposition. D. W. Moser*, *Kansas State University, Manhattan.*

SYMPOSIUM
Nonruminant Nutrition
Mineral Absorption: What is Known?
Chair: Scott Radcliffe, Purdue University
Sponsor: Alltech
105–106

- 9:30 AM Introduction. J. S. Radcliffe, *Purdue University, West Lafayette, IN.*
- 9:35 AM 66 Transporters in the absorption and utilization of Zn and Cu. G. M. Hill* and J. E. Link, *Michigan State University, East Lansing.*
- 10:10 AM 67 Absorption and metabolism of iron and manganese. J. W. Spears* and S. L. Hansen, *North Carolina State University, Raleigh.*
- 10:45 AM Identification of organic trace minerals: What does this tell us about potential routes of absorption? A. Yiannikouris, *Alltech, Lexington, KY.*
- 11:20 AM 68 Active phosphate absorption: What do we know and is it important? J. S. Radcliffe*, *Purdue University, West Lafayette, IN.*
- 11:55 AM 69 Intestinal calcium absorption: Mechanisms learned from transgenic and knockout mice. J. C. Fleet*, *Purdue University, West Lafayette, IN.*

Physiology and Endocrinology
Nutrition and Growth, Reproductive and Lactational Performance
Chair: Ron Butler, Cornell University
Sagamore Ballroom 7

- 9:30 AM 70 Adipose triglyceride lipase is a novel lipase in dairy cattle. D. Elkins* and D. Spurlock, *Iowa State University, Ames.*
- 9:45 AM 71 Periparturient changes of adiponectin, adiponectin receptor 1, adiponectin receptor 2, leptin and leptin receptor mRNA expression in subcutaneous adipose tissue of dairy cows. A. Lemor, M. Mielenz, A. Hosseini, and H. Sauerwein*, *University of Bonn, Germany.*
- 10:00 AM 72 Propionate effects on the mRNA expression of adiponectin in two adipose depots and its receptors AdipoR1 and AdipoR2 in liver, skeletal muscle and adipose tissue of goats. M. Mielenz*, C. Seybold, A. Lemor, and H. Sauerwein, *University of Bonn, Germany.*
- 10:15 AM 73 Effect of ghrelin or obestatin continuously infused to dairy cows on grazing and ruminating behaviour and plasma hormone and metabolite concentrations. J. R. Roche*¹, A. J. Sheahan¹, D. P. Berry², L. Chagas¹, D. Blache³, and J. Kay¹, ¹*DairyNZ, Hamilton, New Zealand*, ²*Teagasc Moorepark, Fermoy, Ireland*, ³*University of Western Australia, Perth, Australia.*

- 10:30 AM 74 Evaluation of insulin-like growth factor-I and temperament as selection tools in Brahman heifers. L. C. Caldwell*^{1,3}, R. O. Dittmar III^{1,3}, T. D. A. Forbes², T. H. Welsh Jr.¹, and R. D. Randel³, ¹Texas AgriLife Research, College Station, TX, ²Texas AgriLife Research and Extension Center, Uvalde, TX, ³Texas AgriLife Research and Extension Center, Overton, TX.
- 10:45 AM Break
- 11:00 AM 75 Variation in metabolic regulation in the liver of dairy cows during the dry period and in early lactation. H. A. van Dorland*¹, S. Richter¹, I. Morel², and R. M. Bruckmaier¹, ¹Veterinary Physiology, Vetsuisse Faculty, University of Bern, Bern, Switzerland, ²Agroscope Liebefeld-Posieux (ALP), Posieux, Switzerland.
- 11:15 AM 76 Mild metabolic acidosis in sheep alters renal and skeletal muscle expression, but not liver, of amino acid enzymes and transporters. Y. Xue*¹, S. F. Liao¹, S. Greenwood², B. W. McBride², J. A. Boling¹, and J. C. Matthews¹, ¹University of Kentucky, Lexington, ²University of Guelph, Guelph, ON, Canada.
- 11:30 AM 77 Effects of prepartum 2,4-thiazolidinedione on metabolism and performance of transition dairy cows. K. L. Smith*, W. R. Butler, and T. R. Overton, *Cornell University, Ithaca, NY.*
- 11:45 AM 78 Glutamine synthetase is up-regulated in the liver of old beef cows by estradiol implants. E. D. Miles*¹, B. W. McBride², K. R. Brown¹, K. K. Schillo¹, J. A. Boling¹, and J. C. Matthews¹, ¹University of Kentucky, Lexington, ²University of Guelph, Guelph, ON, Canada.

**Production, Management and the Environment
Measuring and Evaluating Environmental Stress
Chair: Micheal Brouk, Kansas State University
107–108**

- 9:30 AM 79 Dairy cows and the environment: Were we better off 83 years ago? A. D. Garcia*¹ and J. G. Linn², ¹South Dakota State University, Brookings, ²University of Minnesota, St. Paul.
- 9:45 AM 80 Impact of using feedline soakers in combination with Korral Kools® to cool early lactation cows housed in desert style barns. J. F. Smith*¹, B. J. Bradford¹, A. Oddy², J. P. Harner¹, and M. J. Brouk¹, ¹Kansas State University, Manhattan, ²NADA Al-Othman, Al Ahsa, Saudi Arabia.
- 10:00 AM 81 Impact of using evaporative pads and fans in combination with feedline soakers to reduce heat stress of prepartum cows. J. F. Smith*, B. J. Bradford, J. P. Harner, and M. J. Brouk, *Kansas State University, Manhattan.*
- 10:15 AM 82 Differences in thermoregulatory ability between slick and normal-haired lactating Holstein cows in response to acute heat stress. S. Dikmen*^{1,2}, E. Alava², E. Pontes³, J. M. Fear², B. Y. Dikmen⁴, T. A. Olson², and P. J. Hansen², ¹University of Uludag, Bursa, Turkey, ²University of Florida, Gainesville, ³Universidade de São Paulo, São Paulo, Brazil, ⁴University of Uludag, Keles Vocational School, Keles, Bursa, Turkey.
- 10:30 AM 83 Development of models for predicting management practices and conditions that alleviate heat stress in large commercial dairy farms. J. M. Schefers*, K. A. Weigel, and N. B. Cook, *University of Wisconsin, Madison.*
- 10:45 AM 84 Is the temperature-humidity index (THI) the best indicator of heat stress in lactating dairy cows in a subtropical environment? S. Dikmen*^{1,2} and P. J. Hansen², ¹University of Uludag, Faculty of Veterinary Medicine, Bursa, Turkey, ²University of Florida, Gainesville.
- 11:00 AM 85 Evaluation of accuracy and variation of ThermoChron® iButtons®. S. M. Garey*, T. H. Friend, and B. H. Carter, *Texas A&M University, College Station.*
- 11:15 AM 86 Addition of skin temperature to whole body temperature measures improves relationship to Temperature Humidity Index under moderate climatic conditions. R. B. Zimelman*, J. B. Wheelock, M. D. O'Brien, J. Muumba, A. Alex, R. P. Rhoads, L. H. Baumgard, and R. J. Collier, *University of Arizona, Tucson.*
- 11:30 AM 87 Facility characteristics of US dairy operations and their impact on cow health and productivity. J. E. Lombard*¹, C. B. Tucker², M. A. G. von Keyserlingk³, and C. A. Kopral¹, ¹USDA:APHIS:VS:Centers for Epidemiology and Animal Health, Fort Collins, CO, ²University of California, Davis, CA, ³Animal Welfare Program, University of British Columbia, Vancouver, BC, Canada.
- 11:45 AM 88 The effects of supplementing a dietary novel yeast culture on body temperature indices, production and metabolism in heat-stressed lactating cows. G. Shwartz¹, J. B. Wheelock¹, L. L. Hernandez¹, M. D. O'Brien¹, K. A. Dawson², M. J. VanBaale¹, R. P. Rhoads¹, R. B. Zimelman¹, and L. H. Baumgard*¹, ¹University of Arizona, Tucson, ²Alltech Inc., Nicholasville, KY.

- 12:00 PM 89 Effects of nutrition and feeding management on production, health and culling by organically-managed dairy herds in southeastern Pennsylvania. K. Griswold*¹, H. Karreman², S. Dinh¹, and J. High³, ¹*Penn State Cooperative Extension, University Park, PA*, ²*Penn Dutch Cow Care, Gap, PA*, ³*Lancaster DHIA, Manheim, PA*.
- 12:15 PM 90 Identification of efficient sets of artificial insemination reproductive management programs: A stochastic dominance analysis. N. J. Olynk* and C. A. Wolf, *Michigan State University, Lansing*.

**Ruminant Nutrition
Forages
Chair: Stacey Gunter, USDA-ARS-SPRRS
Sagamore Ballroom 4**

- 9:30 AM 91 Optimizing forage use in total mixed rations for lactating cows. R. Kowsar¹, G. R. Ghorbani¹, M. Alikhani¹, M. Khorvash¹, and A. Nikkhah*^{2,3}, ¹*Isfahan University of Technology, Isfahan, Iran*, ²*Zanjan University, Zanjan, Iran*, ³*University of Illinois, Urbana*.
- 9:45 AM 92 Fenugreek as forage for dairy cows 1. Effect on productivity. A. W. Alemu* and L. Doepel, *University of Alberta, Edmonton, AB, Canada*.
- 10:00 AM 93 Brown midrib corn silage fed during the transition period can result in a persistent increase in production. W. C. Stone*¹, L. E. Chase¹, T. R. Overton¹, J. L. Lukas¹, and K. E. Nestor², ¹*Cornell University, Ithaca, NY*, ²*Mycogen Seeds, Wooster, OH*.
- 10:15 AM 94 Production response of lactating cows to combinations of BMR corn silage and Tifton 85 bermudagrass hay. J. J. Castro*, N. A. Mullis, and J. K. Bernard, *University of Georgia, Athens*.
- 10:30 AM 95 Effect of wheat forage maturity and preservation method on dietary passage kinetics and DM digestibility of mixed diets fed to growing beef calves. P. Beck*, F. Nacer, B. Stewart, D. Shockey, M. Morgan, and S. Gunter, *University of Arkansas Division of Agriculture, Hope*.
- 10:45 AM 96 Effect of maturity and preservation method of wheat forage on the performance of growing beef calves fed mixed diets. M. Morgan*, P. Beck, F. Nacer, B. Stewart, D. Shockey, and S. Gunter, *University of Arkansas, Division of Agriculture, Hope*.
- 11:00 AM 97 Comparison of grazing stockpiled tall fescue versus feeding hay or hay plus supplement to beef cows in late gestation and early lactation. A. M. Meyer*, R. L. Kallenbach, and M. S. Kerley, *University of Missouri, Columbia*.
- 11:15 AM 98 Associative effects of leguminous (C3; Lucern) and nonleguminous (C4; Corn & sorghum) fodders on in-situ digestion kinetics of fiber. M. Yaqoob*¹, J. I. Sultan², A. Javed², and P. Akhtar³, ¹*Department of Livestock Management, University of Agriculture, Faisalabad, Punjab, Pakistan*, ²*Institute of Animal Nutrition and Feed Technology, University of Agriculture, Faisalabad, Punjab, Pakistan*, ³*Department of Animal Breeding and Genetics, University of Agriculture, Faisalabad, Punjab, Pakistan*.

**Ruminant Nutrition
Minerals and Vitamins
Chair: Allen Young, Utah State University
Sagamore Ballroom 5**

- 9:30 AM 99 Impact of copper deficiency in the presence or absence of high dietary manganese on iron status of cattle. S. L. Hansen* and J. W. Spears, *North Carolina State University, Raleigh*.
- 9:45 AM 100 The effects of trace mineral source on performance and health of newly received steers and the impact of cobalt concentration on performance and lipid metabolism in finishing steers. J. S. Schutz*¹, E. D. Sharman¹, J. J. Wagner¹, C. K. Larson², N. E. Davis¹, and T. E. Engle¹, ¹*Colorado State University, Fort Collins*, ²*Zinpro Corporation, Eden Prairie, MN*.
- 10:00 AM 101 The effect of ZinMet® brand zinc methionine on feedyard performance and carcass merit in crossbred yearling steers. J. J. Wagner¹, J. J. Wagner*¹, T. E. Engle¹, and G. Walker², ¹*Colorado State University, Fort Collins*, ²*Global Animal Products, Amarillo, TX*.
- 10:15 AM 102 Effect of trace mineral source on lactation performance, claw integrity and fertility of dairy cattle. J. L. Siciliano-Jones¹, M. T. Socha*², D. J. Tomlinson², and J. M. DeFrain², ¹*FARME Institute, Homer, NY*, ²*Zinpro Corporation, Eden Prairie, MN*.
- 10:30 AM 103 Effect of nano selenium and organic zinc supplementation on lactation performance and milk selenium and zinc concentrations in dairy cows. W. Wen-Xuan*¹, X. Xian-Lin¹, Z. Yun-Guo², and W. Heng-Jin¹, ¹*Guizhou University, Guiyang, Guizhou Province, P. R. China*, ²*Xifeng Agricultural Bureau, Xifeng, Guizhou Province, P. R. China*.

- 10:45 AM 104 The influence of calf Se status on glutathione peroxidase-1 and glutathione peroxidase-3 activities, and liver GPx-1 messenger RNA. G. Lum*, J. Rowntree, K. Bondioli, M. McCarter, L. Southern, and C. Williams, *LSU Agricultural Center, Baton Rouge, LA*.
- 11:00 AM 105 Selenium partitioning between body compartments in lactating dairy goats supplemented with various sources and levels of Se. G. Caja*, C. Flores¹, A. Salama¹, and G. Bertin², ¹*Universitat Autònoma de Barcelona, Bellaterra, Barcelona, Spain*, ²*Alltech France, Levallois-Perret, France*.
- 11:15 AM 106 Effectiveness of potassium bicarbonate to increase dietary cation-anion difference in early lactation cows. R. White*¹, J. Harrison¹, R. Kincaid², E. Block³, and N. St. Pierre⁴, ¹*Washington State University, Puyallup*, ²*Washington State University, Pullman*, ³*Church and Dwight, Princeton, NJ*, ⁴*The Ohio State University, Columbus*.
- 11:30 AM 107 Phosphorus excretion in lactating cows fed diets supplemented with fat. Z. Wu*, J. D. Ferguson, and D. W. Rensburg, *University of Pennsylvania, Kennett Square*.
- 11:45 AM 108 Effect of feeding rumen-protected niacin on core body temperature and milk production in lactating Holstein dairy cows during summer heat stress. R. B. Zimbleman*, R. J. Collier, and T. R. Bilby, *University of Arizona, Tucson*.
- 12:00 PM 109 Biological activity of vitamin E in dairy cows. S. K. Jensen*, *University of Aarhus, Tjele, Denmark*.

ADSA-SAD
Undergraduate Competition Dairy Foods
Chair: Kas Ingawa, NCSU DRMS
203

- 11:00 AM 110 Conjugated linoleic acids and their effect on dairy marketing. R. M. Haines*, B. A. Corl, and D. R. Winston, *Virginia Polytechnic Institute and State University, Blacksburg*.
- 11:15 AM 111 Probiotics: For life. S. Quarles*, *Clemson University, Clemson, SC*.
- 11:30 AM 112 No spoon required: The changing face of yogurt. A. J. Koons*, *Pennsylvania State University, University Park*.
- 11:45 AM 113 More than what meets the eye: Labeling of milk. A. L. Pitre*, *Louisiana State University, Baton Rouge*.
- 12:00 PM 114 Use of whey proteins in food products. M. Welper*, *Iowa State University, Ames*.

Animal Health II
Chair: Isis Mullarkey, Virginia Tech
206

- 11:00 AM 115 Wildlife threat for disease transmission to domestic livestock. S. C. Olsen*, *National Animal Disease Center, Ames, IA*.
- 12:00 PM 116 Providing veterinary healthcare to underserved counties in Pennsylvania through credentialed veterinary technicians. D. W. Rensburg*, D. T. Galligan, and J. D. Ferguson, *University of Pennsylvania School of Veterinary Medicine, Kennett Square*.
- 12:15 PM 117 A Bootstrap method for the estimation of reference intervals of biochemical parameters. C. Dimauro*¹, P. Bonelli², P. Nicolussi², N. P. P. Macciotta¹, and G. Pulina³, ¹*Dipartimento di Scienze Zootecniche University of Sassari, Sassari, Italy*, ²*Istituto Zooprofilattico Sperimentale per la Sardegna, Sassari, Italy*, ³*AGRIS Sardegna, Sassari, Italy*.

Graduate Student Paper Competition
ADSA-ASAS Northeast Section
Chair: Steven Zinn, University of Connecticut
104

- 11:00 AM 118 Feeding heat-treated colostrum increases IgG absorption in neonatal dairy calves. J. A. Elizondo-Salazar*, A. J. Heinrichs, R. F. Roberts, and M. R. Long, *The Pennsylvania State University, University Park.*
- 11:15 AM 119 Mammary and liver lipogenic gene expression in lactating mice fed diets supplemented with trans-18:1 isomers or t10c12 CLA. A. K. G. Kadegowda*¹, E. E. Connor², B. B. Teter¹, J. Sampugna¹, L. S. Piperova¹, and R. A. Erdman¹, ¹*University of Maryland, College Park*, ²*USDA-ARS, Beltsville, MD.*
- 11:30 AM 120 Photoperiod regulates diurnal expression patterns of genes related to immune function in PBMC of heifers. L. E. Lord*, X. S. Revelo, and T. B. McFadden, *University of Vermont, Burlington.*
- 11:45 AM 121 Colicin E1 and EDTA have additive antimicrobial effects against *Escherichia coli* isolates in bovine milk. J. M. Scudder*¹, C. H. Stahl², and M. R. Waldron¹, ¹*University of Vermont, Burlington*, ²*North Carolina State University, Raleigh.*
- 12:00 PM 122 Skeletal muscle satellite cells do not spontaneously adopt adipogenic fates. J. D. Starkey*, M. Yamamoto, S. Yamamoto, and D. J. Goldhamer, *University of Connecticut, Storrs.*
- 12:15 PM 123 Presence of mammary epithelium modulates expression of growth-regulating genes in stroma of bovine mammary gland. J. G. Titus*, S. B. Simpson, and T. B. McFadden, *University of Vermont, Burlington.*

ADSA-SAD
Undergraduate Competition Dairy Production
Chair: Kas Ingawa, NCSU DRMS
203

- 124 Withdrawn by author.
- 1:00 PM 125 Nutrigenomics: A new direction for the dairy industry. D. G. Wilson*, *Pennsylvania State University, University Park.*
- 1:15 PM 126 Genetics of feed conversion efficiency: Using a dynamic metabolic model to investigate the patterns of nutrient flux in the most efficient dairy animals. C. Schachtschneider* and J. McNamara, *Washington State University, Pullman.*
- 1:30 PM 127 The effects of inbreeding in Holstein dairy cattle. M. B. Rhoderick*, D. R. Winston, B. G. Cassell, and K. M. Olson, *Virginia Polytechnic Institute and State University, Blacksburg.*
- 1:45 PM 128 Colostrum nutrition, immunization, and management when raising young dairy calves. A. Aguiar* and E. Jaster, *California Polytechnic State University, San Luis Obispo.*
- 2:00 PM 129 Enhancing fertility with omega-3 fatty acids. J. A. Tekippe*, *Iowa State University, Ames.*
- 2:15 PM 130 Grazing under irrigation: A novel approach to pasture-based dairying. E. Waggoner*, *Clemson University, Clemson, SC.*
- 2:30 PM 131 The natural fertilizer. K. M. Bridges*, *Louisiana State University, Baton Rouge.*
- 2:45 PM 132 Effects of heat stress and milk replacer strategy on calf growth, starter intake, and fecal scores. L. J. Berger*, G. A. Holub, and J. E. Sawyer, *Texas A&M University, College Station.*

SYMPOSIUM
Dairy Foods
Advances in Low Fat Cheese Research
Chair: Donald McMahon, Utah State University
Sponsor: Dairy Management, Inc.
121

| | | |
|---------|-----|--|
| 1:30 PM | 133 | Low fat cheese opportunities. J. Montel*, <i>Dairy Management Inc., Rosemont, IL.</i> |
| 2:00 PM | 134 | The impact of fat content on flavor of cheddar cheese. M. A. Drake*, <i>North Carolina State University, Raleigh.</i> |
| 2:30 PM | 135 | Effect of composition on the microbial ecology of low fat cheese. J. R. Broadbent*, <i>Utah State University, Logan.</i> |
| 2:45 PM | 136 | Effect of composition on the microbial metabolism of low fat cheese. J. Steele*, <i>University of Wisconsin, Madison.</i> |
| 3:00 PM | 137 | Impact of fat content on cheese texture. E. A. Foegeding*, <i>North Carolina State University, Raleigh.</i> |
| 3:30 PM | 138 | Effect of fat reduction on the functional properties of slice on slice process cheese. L. E. Metzger* ¹ , S. Chandran ¹ , C. R. Daubert ² , M. Yurgec ² , and S. Ramsey ² , ¹ <i>South Dakota State University, Brookings,</i> ² <i>North Carolina State University, Raleigh.</i> |
| 4:00 PM | 139 | Advances in nonfat/lowfat process cheese for melting and ingredient use. J. A. Lucey*, <i>University of Wisconsin, Madison.</i> |
| 4:30 PM | 140 | A novel technology for making lowfat cheese. N. Y. Farkye* and M. Arnold, <i>California Polytechnic State University, San Luis Obispo.</i> |
| 4:45 PM | 141 | Alternative manufacturing protocols for low fat cheese. M. Johnson*, <i>University of Wisconsin, Madison.</i> |

FASS Ag Guide Revision Workshop
Chairs: Janice Swanson, Michigan State University, and John McGlone, Texas Tech University
120

The Ag Guide was first published in 1988. The second edition was published in 1999. The 3rd edition will be published in late 2008. A collection of writing sub-committees has produced a first draft in early 2008. This workshop will (a) present major changes in the current draft, (b) gather public input into the current draft, and (c) identify errors of fact or omission.

| | |
|---------|--|
| 2:00 PM | Background on the revision of the Ag Guide. |
| 2:30 PM | Highlight of major changes in the current revision. |
| 3:00 PM | Roundtable discussion topics: <ul style="list-style-type: none"> • Change in the title • Inclusion of genetically modified, and cloned animals • Applications for agricultural animals in biomedical research • Inclusion of biosecurity • Expanded environmental enrichment materials • Inclusion of humane slaughter guidance • What materials are missing, if any? • Does the current version contain errors of fact based on the best available science? |
| 4:00 PM | Conclusions and group summaries. |

SYMPOSIUM
ADSA Southern Section Symposium
Responding to Hot Topics in Dairy Management
Chair: Cathleen C. Williams, Louisiana State University
109–110

| | | |
|---------|-----|--|
| 2:00 PM | 142 | Biosecurity: Dealing with problem diseases. K. E. Olson*, <i>KEO Consulting, Schaumburg, IL.</i> |
| 2:30 PM | 143 | Defending against mycoplasma mastitis. J. C. Beagley and M. W. Overton*, <i>University of Georgia, Athens.</i> |
| 3:00 PM | | Break |
| 3:15 PM | 144 | The use of distillers grains in dairy cattle diets. D. J. Schingoethe*, <i>South Dakota State University, Brookings.</i> |
| 3:45 PM | 145 | Challenges of improving dairy cow fertility during summer heat stress: An ovum's perspective. J. L. Edwards*, <i>University of Tennessee, Knoxville.</i> |
| 4:15 PM | | Break |
| 4:30 PM | | ADSA Southern Branch Business Meeting. |

SYMPOSIUM
ALPHARMA Beef Cattle Nutrition and Beef Species Joint Symposium
Producing Quality Beef in a Bio-Based Economy
Chair: Don Boggs, Kansas State University
Sponsor: Alpharma
500 Ballroom

| | | |
|---------|-----|---|
| 2:00 PM | 146 | ASAS Centennial Presentation: Development and current issues of a corn-based beef industry. L. R. Corah*, <i>Certified Angus Beef LLC, Wooster, OH.</i> |
| 2:30 PM | 147 | Feeding strategies to reduce corn use. R. H. Pritchard* ¹ , D. D. Loy ² , and D. L. Boggs ³ , ¹ <i>South Dakota State University, Brookings,</i> ² <i>Iowa State University, Ames,</i> ³ <i>Kansas State University, Manhattan.</i> |
| 3:00 PM | 148 | Environmental considerations of feeding bio-fuel co-products. N. A. Cole* ¹ , M. S. Brown ² , and J. C. MacDonald ³ , ¹ <i>USDA-ARS-CPRL, Bushland, TX,</i> ² <i>West Texas A&M University, Canyon,</i> ³ <i>Texas AgriLife Research, Amarillo, TX.</i> |
| 3:30 PM | 149 | Precursors to enhance marbling. S. B. Smith*, J. E. Sawyer, R. D. Rhoades, and M. A. Brooks, <i>Texas A&M University, College Station.</i> |
| 4:00 PM | 150 | Post-harvest strategies to enhance beef quality. J. O. Reagan*, <i>NCBA, Centennial, CO.</i> |
| 4:30 PM | 151 | ASAS Centennial Presentation: Using grain and biomass for feed versus fuel. J. Lawrence*, <i>Iowa State University, Ames.</i> |

Animal Health III
Chair: Gary Snowder, USDA-ARS
206

| | | |
|---------|-----|---|
| 2:00 PM | 152 | Stress and Immunity: Implications on animal health and production. J. A. Carroll* ¹ , T. H. Elsasser ² , J. C. Laurenz ³ , R. D. Randel ⁴ , J. L. Sartin ⁵ , and T. H. Welsh Jr. ⁶ , ¹ <i>Livestock Issues Research Unit, USDA-ARS, Lubbock, TX,</i> ² <i>Growth Biology Laboratory, USDA-ARS, Beltsville, MD,</i> ³ <i>Texas A&M University System, Kingsville,</i> ⁴ <i>Texas AgriLife Research and Extension Center, Texas A&M System, Overton,</i> ⁵ <i>Auburn University, Auburn, AL,</i> ⁶ <i>Texas AgriLife Research, Texas A&M System, College Station.</i> |
| 3:00 PM | 153 | Neck rails improve udder and stall hygiene but increase risk of lameness. F. Bernardi* ^{1,2} , J. Fregonesi ^{1,3} , C. Winkler ² , D. M. Veira ⁴ , M. A. G. von Keyserlingk ¹ , and D. M. Weary ¹ , ¹ <i>University of British Columbia, Vancouver, BC, Canada,</i> ² <i>University of Natural Resources and Applied Life Sciences, Vienna, Austria,</i> ³ <i>Universidade Estadual de Londrina, Londrina, PR, Brazil,</i> ⁴ <i>Agriculture and Agri-Food Canada, Agassiz, BC, Canada.</i> |

- 3:15 PM 154 Cytokine secretion in periparturient dairy cows naturally infected with *Mycobacterium avium* subsp. *paratuberculosis*. E. L. Karcher^{*1}, D. C. Beitz¹, and J. R. Stabel², ¹*Iowa State University, Ames*, ²*ARS-USDA, National Animal Disease Center, Ames, IA*.
- 3:30 PM 155 A clinical trial evaluating MorindaMax™ Calf® immune-supplement on health and performance of preweaned, Holstein, heifer calves. V. J. Brooks¹, T. J. Paulus¹, T. DeWolfe¹, R. G. Godbee², S. F. Peek¹, S. M. McGuirk¹, and B. J. Darien^{*1}, ¹*University Wisconsin, Madison*, ²*University Nevada, Reno*.
- 3:45 PM 156 Effect of weaning strategy on immunological, hematological and physiological responses of beef calves. E. M. Lynch^{*1,2}, B. Earley¹, M. McGee¹, and S. Doyle², ¹*Teagasc, Grange Beef Research Centre, Dunsany, Co. Meath, Ireland*, ²*National University of Ireland, Maynooth, Co. Kildare, Ireland*.
- 4:00 PM 157 Dietary Colicin E1 prevents experimentally induced post-weaning diarrhea but does not provide a growth promoting effect. S. A. Cutler¹, N. A. Cornick¹, S. M. Lonergan¹, and C. H. Stahl^{*2}, ¹*Iowa State University, Ames*, ²*North Carolina State University, Raleigh*.
- 4:15 PM 158 Effects of PCV2 vaccine on growth performance and mortality rate of pigs in a PCV2-positive commercial swine herd. J. Y. Jacela^{*}, S. S. Dritz, M. D. Tokach, J. M. DeRouchey, R. D. Goodband, J. L. Nelssen, R. C. Sulabo, and J. R. Bergstrom, *Kansas State University, Manhattan*.
- 4:30 PM 159 Effect of feeding *Mucuna pruriens* to sheep on helminth parasite infestation in lambs. C. M. Huisden^{*}, A. T. Adesogan, J. M. Gaskin, C. H. Courtney, A. M. Raji, and T. Kang, *University of Florida, Gainesville*.
- 4:45 PM 160 The effect of the synthetic glucocorticoid dexamethasone on clock gene expression in bovine neutrophils. S. J. Nebzydoski^{*}, L. M. Nemec, and T. F. Gressley, *University of Delaware, Newark*.

SYMPOSIUM

ASAS Cell Biology

The Role of MicroRNA on Cell Function

Chairs: James Matthews, University of Kentucky, and Elisabeth Huff-Lonergan, Iowa State University

Sponsors: American Society of Animal Science and USDA-CSREES

Sagamore Ballroom 2

- 2:00 PM Introduction
- 2:05 PM 161 MicroRNA: Mechanism of gene regulation. T. G. McDanel^{*}, *USDA/ARS US Meat Animal Research Center, Clay Center, NE*.
- 2:35 PM 162 Role of MicroRNAs in hepatocarcinogenesis in an animal model. K. Ghoshal^{*}, J. Datta, and H. Kutay, *Ohio State University, Wooster*.
- 3:05 PM MicroRNA in muscle development. M. Georges^{*}, *University of Liege, Belgium*.
- 3:35 PM 163 MicroRNAs in the ovary and female reproductive tract. L. Christenson^{*}, M. Carletti, S. Fiedler, L. Luense, and X. Hong, *University of Kansas Medical Center, Kansas City*.
- 4:05 PM Discussion

SYMPOSIUM

Bioethics

Value of Bioethics Leadership for Food Animal Agriculture

Chair: Janice Siegford, Michigan State University

101–102

- 2:00 PM Introduction
- 2:05 PM 164 Bioethics across the disciplines: Leadership and mutual respect. G. Varner^{*}, *Texas A&M University, College Station*.
- 2:35 PM 165 Bioethics: The need for leadership and how societies should respond. M. G. Hogberg^{*}, *Iowa State University, Ames*.
- 3:00 PM 166 Bioethics: The need for leadership and how the societies should respond. M. P. Lacy^{*}, *University of Georgia, Athens*.

| | | |
|---------|-----|--|
| 3:25 PM | | Break |
| 3:40 PM | 167 | ASAS Centennial Presentation: Role of industry leaders in addressing bioethical issues. J. W. Lauderdale*, <i>Lauderdale Enterprises Inc., Augusta, MI.</i> |
| 4:10 PM | 168 | Summary and perspective from within. D. J. R. Cherney*, <i>Cornell University, Ithaca, NY.</i> |
| 4:30 PM | | Discussion |

SYMPOSIUM

Breeding and Genetics

Training of Future Animal Breeders

Chairs: Janice Rumph, Michigan State University, and Filippo Miglior, Agriculture and Agri-Food Canada

Sponsor: Igenity

Sagamore Ballroom 6

| | | |
|---------|-----|--|
| 2:00 PM | | Introduction. J. Rumph, <i>Michigan State University, Lake City.</i> |
| 2:10 PM | 169 | Training graduate students in animal breeding: A historical prospective. E. J. Pollak*, <i>Cornell University, Ithaca, NY.</i> |
| 2:40 PM | 170 | Graduate education utilizing distance learning. R. M. Lewis* ¹ , B. B. Lockee ¹ , M. S. Ames ¹ , R. M. Enns ² , J. M. Rumph ³ , T. W. Wilkinson ¹ , and E. J. Pollak ⁴ , ¹ <i>Virginia Tech, Blacksburg</i> , ² <i>Colorado State University, Fort Collins</i> , ³ <i>Michigan State University, Lake City</i> , ⁴ <i>Cornell University, Ithaca, NY.</i> |
| 3:10 PM | 171 | Challenges of training quantitative graduate students. I. Misztal* and J. K. Bertrand, <i>University of Georgia, Athens.</i> |
| 3:40 PM | 172 | Alternative teaching techniques for new and smaller animal breeding programs. C. D. Dechow*, <i>Penn State University, University Park.</i> |
| 4:10 PM | 173 | Quantitative genetics training to meet the needs of the breeding industry. M. M. Lohuis*, <i>Monsanto Company, St. Louis, MO.</i> |
| 4:40 PM | | Panel Discussion. J. Rumph ¹ and F. Miglior ² , ¹ <i>Michigan State University, Lake City</i> , ² <i>Agriculture and Agri-Food Canada, Guelph, ON, Canada.</i> |

Companion Animals

Comparative Animal Biology

Chair: Gail Kuhlman, Proctor and Gamble Pet Care

204

| | | |
|---------|-----|---|
| 2:00 PM | 174 | Diet transition time and stabilization of apparent digestibility in the feline. S. K. Martin* ¹ , M. R. C. de Godoy ¹ , D. L. Harmon ¹ , E. S. Vanzant ¹ , R. M. Yamka ² , K. G. Friesen ² , and K. R. McLeod ¹ , ¹ <i>University of Kentucky, Lexington</i> , ² <i>Hill's Pet Nutrition Inc., Topeka, KS.</i> |
| 2:15 PM | 175 | Low-level fructan supplementation is effective in modifying stool protein catabolite concentrations but not gut microbiota populations in adult dogs. K. Barry* ¹ , D. Hernot ¹ , I. Middelbos ¹ , C. Francis ² , B. Dunsford ² , and G. Fahey Jr. ¹ , ¹ <i>University of Illinois, Urbana</i> , ² <i>GTC Nutrition, Golden, CO.</i> |
| 2:30 PM | 176 | Influence of dietary protein content and source on digestibility patterns, osmolality and fecal quality in dogs differing in body size. J. Nery* ¹ , C. Tournier ² , V. Biourge ² , L. Martin ¹ , H. Dumon ¹ , and P. Nguyen ¹ , ¹ <i>Ecole Nationale Veterinaire de Nantes, Nantes, France</i> , ² <i>Royal Canin, Aimargues, France.</i> |
| 2:45 PM | 177 | Evaluation of high protein diets in kittens during their first year of life. B. M. Vester* ¹ , K. J. Liu ² , T. L. Keel ¹ , T. K. Graves ¹ , and K. S. Swanson ¹ , ¹ <i>University of Illinois, Urbana</i> , ² <i>Natura Manufacturing Inc., Fremont, NE.</i> |
| 3:00 PM | 178 | Influence of feeding raw or extruded feline diets on nutrient digestibility and nitrogen metabolism in African wildcats. B. M. Vester* ¹ , S. L. Burke ² , K. J. Liu ³ , C. L. Dikeman ² , L. G. Simmons ² , and K. S. Swanson ¹ , ¹ <i>University of Illinois, Urbana</i> , ² <i>Henry Doorly Zoo, Omaha, NE</i> , ³ <i>Natura Manufacturing Inc., Fremont, NE.</i> |

- 3:15 PM 179 Vitamin and mineral comparisons between captive and free-ranging koalas (*Phascolarctos cinereus*), possible explanations for hip dysplasia. D. A. Schmidt*¹, W. A. Ellis^{1,2}, F. B. Bercovitch¹, Z. Lu³, T. C. Chen³, C. Hamlin-Andrus¹, G. W. Pye¹, and M. F. Holick³, ¹*Zoological Society of San Diego, San Diego, CA*, ²*University of Queensland, Brisbane, Australia*, ³*Vitamin D, Skin and Bone Laboratory, Boston University School of Medicine, Boston, MA*.
- 3:30 PM 180 Using regression analysis to determine the quantities of browse component dry matter on branches of Carolina willow (*Salix caroliniana*). M. L. Schlegel*^{1,2}, A. McComb^{2,3}, and E. V. Valdes², ¹*The Zoological Society of San Diego, San Diego, CA*, ²*Disney's Animal Programs, Lake Buena Vista, FL*, ³*North Carolina State University, Raleigh*.
- 3:45 PM 181 An epidemiological study into the effect of captive diets on reproductive success in Humboldt and African penguins. R. McClements*^{1,3}, K. Slifka², and A. Ward³, ¹*University of Sydney, Camperdown, NSW, Australia*, ²*Dallas Zoo and Aquarium, Dallas, TX*, ³*Zoo Nutrition Services, Fort Worth, TX*.

Forages and Pastures I
Chair: Charles Staples, University of Florida
104

- 2:00 PM 182 Reduced ferulate cross link concentration is associated with improved fiber digestibility of corn stover at silage maturity. H. G. Jung*^{1,2} and R. L. Phillips², ¹*USDA-ARS, St. Paul, MN*, ²*University of Minnesota, St. Paul*.
- 2:15 PM 183 Evaluation of alfalfa hays with down-regulated lignin biosynthesis. D. R. Mertens*¹ and M. McCaslin², ¹*US Dairy Forage Research Center, Madison, WI*, ²*Forage Genetics International, Nampa, ID*.
- 2:30 PM 184 Lactating cow responses to alfalfa hays with down-regulated lignin biosynthesis. D. Weakley*¹, D. R. Mertens², and M. McCaslin³, ¹*LongView Animal Nutrition Center, Gray Summit, MO*, ²*US Dairy Forage Research Center, Madison, WI*, ³*Forage Genetics International, Nampa, ID*.
- 2:45 PM 185 Digestibility, milk fatty acid profile, and plasma amino acids in lactating dairy cows fed alfalfa cut at sundown or sunup. A. F. Brito*¹, G. F. Tremblay², C. Benchaar¹, A. Bertrand², Y. Castonguay², G. Bélanger², R. Michaud², H. Lapierre¹, D. R. Ouellet¹, H. V. Petit¹, and R. Berthiaume¹, ¹*Dairy & Swine R&D Centre, Agriculture & Agri-Food Canada, Sherbrooke, QC, Canada*, ²*Soils & Crops R&D Centre, Agriculture and Agri-Food Canada, Quebec, QC, Canada*.
- 3:00 PM 186 Effects of cutting alfalfa at sundown or sunup on omasal flow of nutrients in lactating dairy cows. A. F. Brito*¹, G. F. Tremblay², C. Benchaar¹, A. Bertrand², Y. Castonguay², G. Bélanger², R. Michaud², H. Lapierre¹, D. R. Ouellet¹, and R. Berthiaume¹, ¹*Dairy & Swine R&D Centre, Agriculture & Agri-Food Canada, Sherbrooke, QC, Canada*, ²*Soils & Crops R&D Centre, Agriculture & Agri-Food Canada, Quebec, QC, Canada*.
- 3:15 PM 187 Which native Sicilian pasture plants make the difference for milk aroma quality? I. Schadt*¹, T. Rapisarda¹, G. Belvedere¹, F. La Terra¹, G. Azzaro¹, P. J. Van Soest², G. Licitra^{3,1}, and S. Carpino¹, ¹*CoRFiLaC, Regione Siciliana, Ragusa, Italy*, ²*Cornell University, Ithaca, NY*, ³*D.A.C.P.A., University of Catania, Catania, Italy*.
- 3:30 PM 188 Effects of supplementing tanniferous sainfoin hay on nitrogen metabolism of grass-fed dairy cows. F. Dohme*¹, A. Scharenberg¹, and M. Kreuzer², ¹*Agroscope Liebefeld-Posieux, Research Station ALP, Posieux, FR, Switzerland*, ²*ETH Zurich, Institute of Animal Science, Zurich, ZH, Switzerland*.
- 3:45 PM 189 Modeling manure OM and N composition of dairy cows fed grass silage based diets. J. Dijkstra*¹, A. Bannink², E. A. Lantinga³, and J. W. Reijs⁴, ¹*Animal Nutrition Group, Wageningen University, Wageningen, the Netherlands*, ²*Animal Sciences Group, Wageningen UR, Lelystad, the Netherlands*, ³*Biological Farming Systems Group, Wageningen University, Wageningen, the Netherlands*, ⁴*Agricultural Economics Research Institute, Wageningen UR, Wageningen, the Netherlands*.

Nonruminant Nutrition
Mineral
Chairs: Gary Fitzner, Diamond V Mills, and Xingen Lei, Cornell University
107–108

- 2:00 PM 190 Effect of phytic acid on apparent ileal digestibility of minerals in piglets. T. A. Woyengo*¹, A. Cowieson², O. Adeola³, and C. M. Nyachoti¹, ¹*University of Manitoba, Winnipeg, MB, Canada*, ²*Danisco (UK) Limited, Marlborough, UK*, ³*Purdue University, West Lafayette, IN*.
- 2:15 PM 191 Impact of steeping high-moisture corn with phytase on growth performance and phosphorus utilization in liquid-fed starter pigs. D. Columbus*¹, S. J. Niven, C. L. Zhu, and C. F. M. deLange, *University of Guelph, Guelph, ON, Canada*.

- 2:30 PM 192 The effects of dietary calcium to total phosphorus ratio (Ca:tP) in diets containing 1000 FTU/kg of phytase on performance in 10–25 kg pigs. K. L. Saddoris*, S. B. Williams, D. W. Dean, and D. R. Cook, *Akey, Lewisburg, OH*.
- 2:45 PM 193 MINTREX®Zn provides similar performance to ZnO in nursery pigs at lower inclusion. R. J. Harrell, B. V. Lawrence*, R. Anderson, F. Navarro, and C. D. Knight, *Novus International Inc., St. Charles, MO*.
- 3:00 PM 194 Combination of organic and inorganic trace minerals for sows and weaned pigs. G. J. M. Lima*¹, F. Catunda², W. Close³, L. C. Ajala¹, and F. Rutz⁴, ¹*Embrapa – Swine and Poultry Res. Center, Brazil*, ²*Alltech, Brazil*, ³*Close Consulting, U.K.*, ⁴*UFPel, Brazil*.
- 3:15 PM 195 Effects of copper sulfate, tri-basic copper chloride, and zinc oxide on weanling pig growth and plasma mineral levels. N. W. Shelton*¹, M. D. Tokach¹, J. L. Nelssen¹, R. D. Goodband¹, S. S. Dritiz¹, J. M. DeRouchey¹, and G. M. Hill², ¹*Kansas State University, Manhattan*, ²*Michigan State University, East Lansing*.
- 3:30 PM 196 Effects of various copper sources on copper bioavailability in broiler chickens. B. J. Min*¹, S. J. Park², R. A. Samford³, and S. W. Kim¹, ¹*North Carolina State University, Raleigh*, ²*Texas Tech University, Lubbock*, ³*Albion Advanced Nutrition, Clearfield, UT*.
- 3:45 PM 197 Supplementing inorganic or organic Se to diets using grains grown in various regions of the United States. D. C. Mahan*¹, J. E. Pettigrew¹, M. D. Lindemann², G. L. Cromwell¹, P. S. Miller¹, E. van Heugten¹, S. W. Kim¹, T. D. Crenshaw¹, M. J. Azain², and C. R. Dove², ¹*NCCC-42 Committee on Swine Nutrition*, ²*S 1012 Committee on Swine Nutrition*.
- 4:00 PM 198 Effects of dietary selenium on expression of selenoproteins and activity of antioxidant enzymes in endocrine tissues of growing male pigs. J. C. Zhou¹, J. G. Li¹, K. N. Wang¹, X. Xia¹, Y. J. Zhang¹, Y. Liu¹, Y. Zhao¹, and X. G. Lei*^{1,2}, ¹*Int. Ctr. of Future Agriculture for Human Health, Sichuan Agri. Univ., Ya'an, China*, ²*Cornell University, Ithaca, NY*.
- 4:15 PM 199 Effects of sodium bisulfate on growth performance, slurry characteristics, and nutrient excretion of finishing pigs. J. Jarrett*, S. Carter, J. Bundy, M. Lachmann, and T. Walraven, *Oklahoma State University, Stillwater*.

Nonruminant Nutrition Protein and Amino Acids

Chairs: Kevin Halpin, International Ingredient Corp., and Hans H. Stein, University of Illinois

Sponsor: ASAS Foundation

105–106

- 2:00 PM 200 Is niacin (vitamin B₃) a modulator of the effect of supplementary tryptophan on tryptophan metabolism and growth responses in early-weaned pigs? J. J. Matte*¹, A. Giguère¹, D. Melchior³, and N. LeFloch², ¹*Agriculture and Agri-Food Canada, Sherbrooke (STN-Lennoxville), QC, Canada*, ²*INRA-SENAH, St-Gilles, France*, ³*Ajinomoto-Eurolysine SAS, Paris, France*.
- 2:15 PM 201 Effect of replacing fish meal with synthetic amino acids on the growth performance of nursery pigs. C. L. Bradley*¹, C. V. Maxwell¹, Z. B. Johnson¹, J. L. Usry², and J. W. Frank¹, ¹*University of Arkansas, Fayetteville*, ²*Ajinomoto Heartland LLC, Chicago, IL*.
- 2:30 PM ASAS Early Career Achievement Award: Introduction.
- 2:35 PM 202 **ASAS Early Career Achievement Award Presentation:** Balancing amino acids for reproductive performance of sows. S. W. Kim*, *North Carolina State University, Raleigh*.
- 3:05 PM ASAS Early Career Achievement Award: Discussion.
- 3:15 PM 203 Adaptation of protein metabolism to changes in lysine intake in growing pigs. J. J. G. C. Van den Borne*, S. Borgjijink, J. Dijkstra, and W. J. J. Gerrits, *Wageningen University, Wageningen, the Netherlands*.
- 3:30 PM 204 Effects of fortifying low crude protein diet with crystalline amino acids on ammonia and uric acid production and excretion in broilers. N. F. Namroud, M. Shivazad*, and M. Zaghari, *University of Tehran, Karaj, Tehran, Iran*.
- 3:45 PM 205 The effect of the level of crude protein and dietary fiber on the productive performance and health status of piglets. R. G. Hermes*, F. Molist, M. Iwazaki, M. Nofrarias, J. Gasa, and J. F. Pérez, *Universitat Autònoma de Barcelona, Bellaterra, Barcelona, Spain*.
- 4:00 PM 206 Pea protein as a substitute of soy bean protein in diets for young pigs: Effects on nutrient digestibility and digestive traits. D. G. Valencia¹, M. P. Serrano¹, C. Centeno², R. Lázaro¹, and G. G. Mateos*¹, ¹*Universidad Politécnica de Madrid, Spain*, ²*Instituto del Frío, C.S.I.C., Madrid, Spain*.
- 4:15 PM 207 Metabolizable energy and nitrogen-corrected metabolizable energy of meat and bone meal for pig. O. A. Olukosi* and O. Adeola, *Purdue University, West Lafayette, IN*.
- 4:30 PM 208 Amino acid and energy digestibility in soybean meal from high-protein and low-oligosaccharide varieties of soybeans fed to growing pigs. K. M. Baker* and H. H. Stein, *University of Illinois, Urbana*.

- 4:45 PM 209 Standardized ileal amino acid digestibilities in grain legumes for pigs. D. Jezierny¹, R. Mosenthin¹, M. Eklund¹, and M. Rademacher², ¹University of Hohenheim, Stuttgart, Germany, ²Evonik Degussa GmbH, Hanau-Wolfgang, Germany.
- 5:00 PM 210 True ileal amino acid digestibility in cecectomized roosters and lysine bioavailability in chicks fed distillers dried grains with solubles. A. A. Pahl^{*}, J. E. Pettigrew, C. S. Scherer, D. H. Baker, C. M. Parsons, and H. H. Stein, *University of Illinois, Urbana.*

**Ruminant Nutrition
Growing Youngstock, Calves and Heifers
Chair: Cathy Bandyk, QLF
Sagamore Ballroom 4**

- 2:00 PM 211 Evaluating residual feed intake on performance of growing and finishing steers. C. O. Trejo^{*}, L. L. Berger, D. B. Faulkner, J. M. Dahlquist, and T. G. Nash, *University of Illinois, Urbana.*
- 2:15 PM 212 Relationships between residual feed intake and carcass-quality traits in Santa Gertrudis steers. F. R. B. Ribeiro^{*1}, R. K. Miller¹, E. G. Brown², P. A. Lancaster¹, L. O. Tedeschi¹, S. Moore³, D. DeLaney³, and G. E. Carstens¹, ¹Texas A&M University, College Station, ²Stephen F. Austin State University, Nacogdoches, TX, ³King Ranch, Kingsville, TX.
- 2:30 PM 213 Predicting water intake by yearling steers during the summer. J. L. Lacey^{*}, J. J. Wagner, and T. E. Engle, *Colorado State University, Fort Collins.*
- 2:45 PM 214 Combinations of steam-flaked corn, dry-rolled corn, and dried corn distiller's grains with solubles for feedlot heifers. P. L. Black^{*1}, G. L. Parsons¹, M. K. Shelor¹, K. K. Karges², M. L. Gibson², and J. S. Drouillard¹, ¹Kansas State University, Manhattan, ²Dakota Gold Research Association, Sioux Falls, SD.
- 3:00 PM 215 Cow live weight is negatively related to feed efficiency of cow/calf pairs from birth to weaning¹. T. Z. Albertini^{*2}, S. R. de Medeiros³, R. A. de A. Torres Júnior³, and D. P. D. Lanna³, ¹Fapesp, Embrapa, ²ESALQ-USP, Piracicaba, SP, Brazil, ³Embrapa Beef Cattle, Campo Grande, MS, Brazil.
- 3:15 PM 216 Effects of using wheat gluten and rice protein concentrate in calf milk replacers. T. M. Hill^{*}, H. G. Bateman II, J. M. Aldrich, and R. L. Schlotterbeck, *Akey, Lewisburg, OH.*
- 3:30 PM 217 The effects of controlled feeding a high concentrate or high forage diet at four nitrogen intakes on nitrogen utilization in dairy heifers. G. I. Zanton^{*} and A. J. Heinrichs, *The Pennsylvania State University, University Park.*
- 3:45 PM 218 Effects of ractopamine HCl on growth performance and carcass characteristics of feedlot heifers. J. W. Himm^{*1}, W. J. Platter¹, M. J. Corbin¹, J. J. Wagner², N. E. Davis², J. S. Drouillard³, and C. E. Walker³, ¹Elanco Animal Health, Greenfield, IN, ²Colorado State University, Ft. Collins, ³Kansas State University, Manhattan.
- 4:00 PM 219 Interaction of growing and finishing production system and sorting by weight. D. R. Adams^{*}, T. J. Klopfenstein, G. E. Erickson, M. K. Luebke, and J. R. Benton, *University of Nebraska, Lincoln.*
- 4:15 PM 220 Effect of the addition of plant extracts (Queen of Calves) to milk and differing levels of milk on gastro intestinal tract development of calves. J. K. Margerison^{*}, G. W. Reynolds, and R. Laven, *Massey University, Palmerston North, New Zealand.*
- 4:30 PM 221 Determination of the optimal amino acid concentration in milk replacers for calves less than five weeks of age. T. M. Hill^{*1}, H. G. Bateman, II¹, J. M. Aldrich¹, R. L. Schlotterbeck¹, and K. G. Tanan², ¹Akey, Lewisburg, OH, ²Provimi, Brussels, Belgium.

SYMPOSIUM

**Ruminant Nutrition and Production, Management & Environment Joint Symposium
Designing Field Studies to Evaluate Nutrition Effects on Production, Reproduction and Health of Dairy Cows
Chair: Bill Sanchez, Diamond V Mills
Sponsor: Church and Dwight Co., Inc./Arm & Hammer Animal Nutrition, and Diamond V Mills
Sagamore Ballroom 3**

- 2:00 PM Introduction. W. K. Sanchez, *Diamond V Mills, Tigard, OR.*
- 2:05 PM 222 Utilizing appropriate statistical designs and techniques for data collected from commercial dairies. R. J. Tempelman^{*}, *Michigan State University, East Lansing.*
- 2:45 PM 223 Examples of experimental designs to study production responses. N. R. St-Pierre^{*}, *The Ohio State University, Columbus.*

- 3:15 PM 224 Field studies to study reproduction in dairy cows. J. D. Ferguson*, *University of Pennsylvania, Kennett Square.*
- 3:45 PM 225 Examples of designs to study health responses and the role of meta-analysis. I. J. Lean*¹, A. R. Rabiee¹, and T. F. Duffield², ¹*Bovine Research Australasia, Camden, NSW, Australia*, ²*University of Guelph, Guelph, Ontario, Canada.*
- 4:15 PM 226 Collecting research data with dairy management software. L. Jones*, *FARME Institute Inc., Homer, NY.*

SYMPOSIUM

Small Ruminant

The US Goat Meat Industry and Recent Sheep and Goat Activities at the National Research Council of The National Academies

Chair: David L. Thomas, University of Wisconsin-Madison

Sponsors: AMPA and European Association of Animal Production

103

- 2:00 PM Welcome. D. L. Thomas, *University of Wisconsin, Madison.*
- 2:05 PM 227 Goat meat production, processing, and marketing in the US. K. W. McMillin*, *Louisiana State University Agricultural Center, Baton Rouge.*
- 2:30 PM Questions
- 2:35 PM Backgrounds on the Committee on the Nutrient Requirements of Small Ruminants and the Committee on the Economic Development and Current Status of the Sheep Industry in the United States. A. J. Lewis, *National Research Council, The National Academies, Washington, DC.*
- 2:45 PM 228 New NRC recommendations for energy and protein requirements of goats and sheep. B. W. Hess*, *University of Wyoming, Laramie.*
- 3:10 PM 229 The Small Ruminant Nutrition System (SRNS) model for prediction of energy and protein requirements of goats and sheep. A. Cannas*¹, L. O. Tedeschi², A. S. Atzori¹, and D. G. Fox³, ¹*University of Sassari, Sassari, Sardinia, Italy*, ²*Texas A&M University, College Station*, ³*Cornell University, Ithaca, NY.*
- 3:35 PM Questions
- 3:45 PM 230 Historic trends in US sheep production and prospects for the future. H. A. Glimp*, *University of Nevada, Reno.*
- 4:10 PM 231 Marketing of sheep products: Situation, challenges, and opportunities. G. Williams*, *Texas A&M University, College Station.*
- 4:35 PM Questions

ADSA-SAD

Undergraduate Competition Original Research

Chair: Kas Ingawa, NCSU DRMS

203

- 3:15 PM 232 Milk production, calving, and calf health in lines of dairy cattle selected for high versus low dairy form. M. B. Kron* and M. M. Schutz, *Purdue University, West Lafayette, IN.*
- 3:30 PM 233 The effect of feeding high protein dried distillers grains on milk production. K. J. Hubbard*¹, A. M. Gehman¹, P. J. Kononoff¹, K. Karges², and M. L. Gibson², ¹*University of Nebraska, Lincoln*, ²*Dakota Gold Research Association, Sioux Falls, SD.*
- 3:45 PM 234 The relationship between proinflammatory cytokines levels and onset of milk fever in dairy cows. E. A. Smith*, K. F. Knowlton, C. S. Petersson-Wolfe, I. K. Mullarky, and D. R. Winston, *Virginia Polytechnic Institute and State University, Blacksburg.*
- 4:00 PM 235 Effects of a non-steroidal anti-inflammatory drug prior to dehorning on growth and physiological measures in calves. A. E. Smith*, A. L. Magliaro, J. R. Werner, and R. S. Kensinger, *The Pennsylvania State University, University Park.*
- 4:15 PM 236 The effect of milk feeding method on cross-sucking behavior in pasture-based dairy calves fed once daily. K. A. Jackson* and S. P. Washburn, *North Carolina State University, Raleigh.*

- 4:30 PM 237 Comparison of circulating progesterone and metabolic profiles in Holstein heifers and lactating cows. W. A. Smith^{*1}, D. H. Keisler², W. Silvia³, and L. E. Davis Rincker¹, ¹*Eastern Kentucky University, Richmond*, ²*University of Missouri, Columbia*, ³*University of Kentucky, Lexington*.
- 4:45 PM 238 Evaluation of rumen microbial digestion of corn stover with cellulose treatment. B. Bosma^{*}, R. Jimenez-Flores, and J. Howard, *California Polytechnic State University, San Luis Obispo*.
- 5:00 PM 239 Change in the prevalence of mastitis pathogens in an organic dairy farm as it transitioned from a conventional dairy farm. W. M. McMahan^{*} and L. K. Larry, *Washington State University, Pullman*.

**Companion Animals Graduate
Student Competition - Companion and Exotic Animal Biology
Chair: Kelly Swanson, University of Illinois
204**

- 4:00 PM Graduate Student Competition.

**Wednesday, July 9
POSTER PRESENTATIONS
Animal Health
Immunology
Exhibit Hall CDE**

- W1 Absorption of total immunoglobulin G in dairy calves fed a colostrum replacement. J. A. Elizondo-Salazar^{*1}, R. F. Leuer¹, J. M. Campbell², and A. J. Heinrichs¹, ¹*The Pennsylvania State University, University Park*, ²*APC Inc., Ankeny, IA*.
- W2 Feeding heat-treated colostrum does not affect growth parameters in pre-weaned heifer calves. J. A. Elizondo-Salazar^{*}, R. F. Leuer, and A. J. Heinrichs, *The Pennsylvania State University, University Park*.
- W3 The use of a mini-batch pasteurizer is a suitable system for small farms. J. A. Elizondo-Salazar^{*}, R. F. Leuer, B. M. Jayarao, and A. J. Heinrichs, *The Pennsylvania State University, University Park*.
- W4 Animal performance and blood gas variables of steers pulled and/or treated for Bovine Respiratory Disease. K. M. Bischoff^{*}, L. Carlos-Valdez, B. P. Holland, L. O. Burciaga-Robles, D. L. Step, and C. R. Krehbiel, *Oklahoma State University, Stillwater*.
- W5 Relationship between total microbial colostrum contamination and IgG absorption in newborn dairy calves. M. Terre^{*1} and A. Bach^{1,2}, ¹*IRTA-Unitat de Remugants, Barcelona, Spain*, ²*ICREA, Barcelona, Spain*.
- W6 Comparison of growth, feed intake, and feed efficiency of female calves fed aureomycin plus lasalocid or monensin. G. E. Higginbotham^{*1}, R. C. Chebel², and L. Pereira³, ¹*University of California, Fresno*, ²*University of California-Davis, Tulare*, ³*California State University, Fresno*.
- W7 An international survey on the occurrence of mycotoxins in dried distillers grains with solubles. U. Hofstetter^{*1} and E. Pichler², ¹*Biomim GmbH, Herzogenburg, Austria*, ²*Quantas Analytics GmbH, Tulln, Austria*.
- W8 Incubation temperatures affect secretion of TNF-alpha and IL-6 by peripheral blood mononuclear cells from Brown and Holstein cows. N. Lacetera^{*1}, M. Amadori², U. Bernabucci¹, and A. Nardone¹, ¹*Dipartimento di Produzioni Animali, Viterbo, Italy*, ²*Istituto Zooprofilattico Sperimentale Lombardia-Emilia Romagna, Brescia, Italy*.
- W9 Association of tumor necrosis factor- α (TNF- α) gene promoter polymorphisms with TNF- α response to endotoxin (LPS) in calves. S. Kahl^{*1}, M. Proszkowiec-Weglarz, E. E. Connor, and T. H. Elsasser, *USDA, Agricultural Research Service, Beltsville, MD*.
- W10 Efficacy of a polyclonal antibody preparation against respiratory disease pathogens on cattle morbidity and performance during the step-up period. C. R. Dahlen^{*}, N. DiLorenzo, and A. DiCostanzo, *University of Minnesota, St. Paul*.
- W11 Effect of rubber flooring on leukocyte activation during the periparturient period. K. O'Driscoll^{1,2}, M. M. Schutz³, and S. D. Eicher⁴, ¹*Teagasc, Fermoy, Ireland*, ²*NUI Dublin, Dublin, Ireland*, ³*Purdue University, West Lafayette, IN*, ⁴*USDA-ARS, West Lafayette, IN*.
- W12 Functional evaluation of polymorphisms in the bovine IL-8 gene promoter. S. Kandasamy^{*}, K. L. Haddock, and D. E. Kerr, *University of Vermont, Burlington*.

- W13 Genomic response of immune associated genes to LPS challenge in bovine mammary gland and epithelial cells. D. E. Kerr*, M. Latshaw, and R. Parik, *University of Vermont, Burlington.*
- W14 Genetic analysis of dairy calf health traits and survival. L. Henderson*, F. Miglior^{2,3}, D. Kelton¹, J. Robinson⁴, J. Wormuth⁵, A. Sewalem^{2,3}, and K. Leslie¹, ¹*University of Guelph, Guelph, ON, Canada*, ²*Dairy and Swine Research and Development Centre, Agriculture and Agri-Food Canada, Sherbrooke, QC, Canada*, ³*Canadian Dairy Network, Guelph, ON, Canada*, ⁴*University of Guelph, Guelph, ON, Canada*, ⁵*CY Heifer Farms, Batavia, NY.*

Beef Species Exhibit Hall CDE

- W15 Performance and carcass alteration of Nellore and F1 Brangus × Nellore steers supplied with organic chromium finished on grass. A. Polizel Neto*, A. M. Jorge¹, P. S. A. Moreira², H. F. B. Gomes¹, and R. D. O. Roça¹, ¹*São Paulo State University, Botucatu, São Paulo, Brazil*, ²*Federal University of Mato Grosso, Sinop, Mato Grosso, Brazil.*
- W16 Carcass and beef traits of Nellore and F1 Brangus × Nellore steers supplied with organic chromium finished on grass. A. Polizel Neto*, P. S. A. Moreira², A. M. Jorge¹, H. F. B. Gomes¹, and R. D. O. Roça¹, ¹*São Paulo State University, Botucatu, São Paulo, Brazil*, ²*Federal University of Mato Grosso, Sinop, Mato Grosso, Brazil.*
- W17 Estimation of some effects on longevity of beef cows using survival analysis. F. Szabó* and I. Dákay, *University of Pannonia, Keszthely, Hungary.*
- W18 Evaluation of MultiMin™ to enhance weaned calf productivity. A. E. Fisher*, W. W. Gill³, C. D. Lane Jr.¹, R. L. Ellis², S. B. Blezinger⁴, and G. M. Pighetti¹, ¹*University of Tennessee, Knoxville*, ²*University of Tennessee, Greeneville*, ³*Middle Tennessee State University, Murfreesboro*, ⁴*MultiMin USA, Inc., Sulphur Springs, TX.*
- W19 Variation of MUFA ratio in several muscles of Japanese Black cattle cloned from somatic cells. Y. Nakahashi*, T. Okumura², M. Hada², Y. Fujishima³, K. Yamauchi², S. Hidaka¹, and K. Kuchida¹, ¹*Obihiro University of A & VM, Obihiro-Shi, Hokkaido, Japan*, ²*National Livestock Breeding Center Tokachi Station, Otofuke-Cho, Hokkaido, Japan*, ³*The Ministry of Agriculture, Forestry and Fisheries of Japan, Chiyoda-Ku, Tokyo, Japan.*
- W20 Influence of feed efficiency on profitability of individually fed feedlot cattle. A. L. Shreck*, C. O. Trejo¹, J. W. Homm², L. L. Berger¹, and D. B. Faulkner¹, ¹*University of Illinois, Urbana*, ²*Elanco Animal Health, Greenfield, IN.*
- W21 Characterization of intracellular copper homeostasis regulatory genes in bovine liver. H. Han, T. E. Engle, J. K. Sakugawa, S. L. Archibeque, and K. Partyka*, *Colorado State University, Fort Collins.*
- W22 Evaluation of methods to estimate individual intakes of cattle fed in group pens. G. D. Cruz*, J. W. Oltjen, and R. D. Sainz, *University of California, Davis.*
- W23 Carcass characteristics of Alabama calves fed in four regions of the United States. W. C. Rutherford, J. B. Elmore, S. V. Free, J. K. Grubbs*, M. Hittle, and L. A. Kriese-Anderson, *Auburn University, Auburn.*
- W24 Relationship between residual feed intake and reproductive performance in Brangus heifers. P. A. Lancaster*, G. E. Carstens¹, P. Chen¹, D. W. Forrest¹, T. H. Welsh, Jr.¹, R. D. Randel², and T. D. A. Forbes², ¹*Texas A&M University, College Station*, ²*Texas AgriLife Research, Overton, TX*, ³*Texas AgriLife Research, Uvalde, TX.*
- W25 Fatty acid profile, meat cholesterol and total lipids of *Bos indicus* based types bullocks fed monensin or polyclonal antibodies against lactate-producing rumen bacteria. M. V. Fossa^{1,2}, R. D. L. Pacheco*^{1,2}, D. D. Millen^{1,2}, T. M. da Cunha Leme¹, M. P. de Oliveira¹, C. R. de Oliveira¹, A. E. Mathias¹, J. C. Hadlich¹, A. DiCostanzo³, N. DiLorenzo³, M. De Beni Arrigoni¹, C. L. Martins¹, M. Parrili¹, and S. A. Matsuhara¹, ¹*FMVZ/UNESP, Botucatu, São Paulo, Brazil*, ²*Supported by FAPESP, São Paulo, São Paulo, Brazil*, ³*University of Minnesota, Saint Paul.*
- W26 Evaluation of growth, carcass characteristics and meat tenderness of bullocks fed monensin or polyclonal antibodies against lactate-producing rumen bacteria. R. D. L. Pacheco*^{1,2}, D. D. Millen^{1,2}, T. M. da Cunha Leme¹, C. R. de Oliveira¹, A. E. Mathias¹, J. C. Hadlich¹, A. DiCostanzo³, N. DiLorenzo³, M. De Beni Arrigoni¹, C. L. Martins¹, S. A. Matsuhara¹, M. Parrili¹, M. V. Fossa¹, J. P. S. T. de Bastos¹, T. M. Mariani¹, ¹*FMVZ/UNESP, Botucatu, São Paulo, Brazil*, ²*Supported by FAPESP, São Paulo, São Paulo, Brazil*, ³*University of Minnesota, Saint Paul.*
- W27 Evaluation of the acute phase response in the neonate bovine model following vaccination against bovine respiratory disease complex. W. J. Horne*, K. S. Barling², J. A. Carroll³, A. D. Herring¹, G. A. Holub¹, and J. E. Sawyer¹, ¹*Texas A&M University, College Station*, ²*Novartis Animal Health US Inc., Larchwood, IA*, ³*USDA-ARS, Lubbock, TX.*

Breeding and Genetics II

Exhibit Hall CDE

- W28 Analysis of some environmental factors for growth parameters obtained from Gompertz nonlinear model in Kurdi sheep breed of Iran. H. Farhangfar^{*1}, D. A. Saghil², and M. H. Fathi Nasri¹, ¹*Birjand University, Birjand, Iran*, ²*Agricultural Research Centre, Mashhad, Iran*.
- W29 Response surface regression analysis to locate optimal minimum age at sexual maturity based on body weights at weeks 8 and 12 for indigenous chicken in Khorasan province of Iran. H. Farhangfar^{*}, M. E. Hosseini, and S. M. Navidzadeh, *Birjand University, Birjand, Iran*.
- W30 Estimates of genetic parameters for direct and maternal effects on growth traits and fleece weight of Angora goat (Markhoz) in Iran. M. B. Zandi^{*1}, S. R. Miraei Ashtiani¹, M. Moradi Shahrabak¹, and A. Rashidi², ¹*Tehran University, Karaj, Tehran, Iran*, ²*Kurdistan University, Sanandaj, Iran*.
- W31 Comparison and estimation factors affected body weight traits in the Markhoz breed of goats. M. B. Zandi^{*1}, M. A. Syed Reza¹, M. Moradi Shahrabak¹, and R. Amir², ¹*Tehran University, Karaj, Tehran, Iran*, ²*Kurdistan University, Sanandaj, Iran*.
- W32 Weaning results of Simmental beef calves. F. Szabó^{*} and S. Bene, *University of Pannonia, Keszthely, Hungary*.
- W33 Genotype and environment interaction of weaning results of Simmental calves. A. Fördös and F. Szabó^{*}, *University of Pannonia, Keszthely, Hungary*.
- W34 Genetic association between age and litter traits at first farrowing in a commercial Pietrain-Large White population raised in an open-house system in Thailand. P. Pholsing¹, S. Koonawootrittriron¹, T. Suwanasopee¹, and M. A. Elzo^{*2}, ¹*Kasetsart University, Bangkok, Thailand*, ²*University of Florida, Gainesville*.
- W35 Factors affecting plasma cholesterol, lipoproteins, and triglycerides in growing pigs of various breed compositions raised under Thai tropical conditions. S. Koonawootrittriron¹, T. Suwanasopee¹, and M. A. Elzo^{*2}, ¹*Kasetsart University, Bangkok, Thailand*, ²*University of Florida, Gainesville*.
- W36 Multibreed beef cattle breeding value estimation based on weaning results. Sz. Bene¹, I. Komlósi², Zs. Fekete¹, Z. Lengyel¹, and F. Szabó^{*1}, ¹*University of Pannonia, Keszthely, Hungary*, ²*University of Debrecen, Debrecen, Hungary*.
- W37 Effect of breed composition, temperament, and ELISA scores for paratuberculosis on phenotypic residual feed intake and growth in an Angus-Brahman multibreed herd. M. A. Elzo^{*1}, D. G. Riley², G. R. Hansen³, D. D. Johnson¹, R. O. Myer⁴, D. O. Rae¹, J. G. Wasdin¹, and J. D. Driver¹, ¹*University of Florida, Gainesville*, ²*USDA-ARS STARS, Brooksville, FL*, ³*North Carolina State University, Plymouth*, ⁴*North Florida Research and Education Center, Marianna, FL*.
- W38 Association between breed composition, phenotypic residual feed intake, temperament, ELISA scores for paratuberculosis, and ultrasound carcass traits in an Angus-Brahman multibreed herd. M. A. Elzo^{*1}, D. G. Riley², G. R. Hansen³, D. D. Johnson¹, R. O. Myer⁴, D. O. Rae¹, J. G. Wasdin¹, and J. D. Driver¹, ¹*University of Florida, Gainesville*, ²*USDA-ARS STARS, Brooksville, FL*, ³*North Carolina State University, Plymouth*, ⁴*North Florida Research and Education Center, Marianna, FL*.
- W39 Relationship between carcass traits and phenotypic residual feed intake, breed composition, temperament, and ELISA scores for paratuberculosis in an Angus-Brahman multibreed herd. M. A. Elzo^{*1}, D. D. Johnson¹, D. G. Riley², G. R. Hansen³, R. O. Myer⁴, D. O. Rae¹, J. G. Wasdin¹, and J. D. Driver¹, ¹*University of Florida, Gainesville*, ²*USDA-ARS STARS, Brooksville, FL*, ³*North Carolina State University, Plymouth*, ⁴*North Florida Research and Education Center, Marianna, FL*.
- W40 Genotype × environmental interaction to Nellore cattle raised in two Brazilian regions. J. C. DeSouza^{*1}, L. O. C. DaSilva², J. A. DeFreitas¹, C. H. M. Malhado³, A. Gondo², P. B. Ferraz Filho⁴, R. L. Weaver⁵, and W. R. Lamberson⁵, ¹*Parana Federal University, Palotina Campus, PR, Brazil*, ²*Embrapa Beef Cattle Research Company, CNPq, Campo Grande, MS, Brazil*, ³*South East of Bahia University, Jejué, BA, Brazil*, ⁴*State University of Mato Grosso do Sul, Tres Lagoas, MS, Brazil*, ⁵*University of Missouri, Columbia*.
- W41 Comparison of different nonlinear functions to describe beef cattle growth. L. G. Albuquerque^{*1,7}, S. Forni¹, M. Piles², A. Blasco³, L. Varona⁴, H. N. Oliveira^{5,7}, and R. B. Lobo⁶, ¹*Universidade Estadual Paulista, Jaboticabal, Sao Paulo, Brazil*, ²*IRTA, Unidad de Cunicultura, Caldes de Montbui, Spain*, ³*Universidad Politécnica de Valencia, Valencia, Spain*, ⁴*Centre UdL-IRTA, Lleida, Spain*, ⁵*Universidade Estadual Paulista, Botucatu, Sao Paulo, Brazil*, ⁶*Universidade de Sao Paulo, Ribeirao Preto, Sao Paulo, Brazil*, ⁷*National Counsel of Technological and Scientific Development - CNPq, Brasília, DF, Brazil*.
- W42 Principal component analysis of body measurements of Hanwoo. J. J. Lee^{*} and N. S. Kim, *Chungbuk National University, Republic of Korea*.
- W43 Analysis of growth trait in Brazilian Simmental. M. G. Dib^{*1}, F. R. Araujo Neto², L. F. A. Marques³, and H. N. de Oliveira¹, ¹*Faculdade de Medicina Veterinária e Zootecnia - UNESP, Botucatu, SP, Brazil*, ²*Faculdade de Ciências Agrárias e Veterinárias - UNESP, Jaboticabal, SP, Brazil*, ³*Centro de Ciências Agrárias - UFESb, Alegre, ES, Brazil*.
- W44 Relationship between ultrasonically measured beef cow carcass traits and lifetime productivity. L. A. Pacheco^{*}, J. R. Jaeger, D. W. Moser, and K. C. Olson, *Kansas State University, Manhattan*.

- W45 Estimates of genetic parameters for reproductive traits in Nelore cattle females. M. J. Yokoo*¹, L. G. Albuquerque¹, C. U. Magnabosco², J. F. H. Rodrigues¹, R. B. Lobo³, L. A. F. Bezerra³, and G. J. M. Rosa⁴, ¹São Paulo State University, Jaboticabal, São Paulo, Brazil, ²Embrapa Cerrados, Planaltina-DF, Brazil, ³University of São Paulo, Ribeirão-Preto-SP, Brazil, ⁴University of Wisconsin, Madison.
- W46 An approach for considering genotype × environment interaction in the genetic evaluations of Zebu beef cattle in Brazil. L. O. C. Silva*^{2,3}, S. Tsuruta¹, J. K. Bertrand¹, A. Gondo², P. R. C. Nobre⁴, R. A. A. Torres Jr.³, and C. H. C. Machado⁵, ¹University of Georgia, Athens, GA, ²EMBRAPA Beef Cattle, Campo Grande, Brazil, ³National Council for Scientific and Technological Development, Brasília, Brazil, ⁴Foundation for Agric. and Environment Research, Campo Grande, Brazil, ⁵Brazilian Association of Zebu Breeders, Uberaba, Brazil.
- W47 Phenotypic correlations between the ratio of body measurements and economic traits in Korean native beef cattle. S.-H. Oh*¹, T. White¹, and S.-D. Kim², ¹North Carolina A&T State University, Greensboro, ²National Institute of Animal Science, South Korea.
- W48 Polymorphism of IGF-I gene and its association with growth traits in chicken. B. W. Wang*¹, X. X. Wei¹, M. A. Zhang¹, B. Yue¹, L. Wang¹, Z. G. Yang^{1,2}, S. H. Yu¹, Y. C. Wang¹, L. Z. Jing¹, and G. L. Liu¹, ¹Qingdao Nongye University, Qingdao, Shandong Province, China, ²Feed Research Institute of Chinese Academy of Agricultural Sciences, Beijing, China.
- W49 Genetic and non-genetic factors affecting broiler chick weight at hatch in South West Nigeria. O. T. F. Abanikannda¹, A. O. Leigh¹, O. N. Coker³, O. T. Adeseko*¹, O. Orunmuyi⁴, A. L. Dare², I. S. Okoya¹, and I. O. Ola-Gbadamosi¹, ¹Lagos State University, Ojo, Lagos State, Nigeria, ²Obasanjo Farms Nigeria Limited, Igboora, Oyo State, Nigeria, ³S & D Farms Nigeria Limited, Odeda, Ogun State, Nigeria, ⁴Ahmadu Bello University, Zaria, Kaduna State, Nigeria.
- W50 Boar fertility and semen quality characteristics in lines of pigs selected for component traits of female reproduction. B. A. Freking*¹, P. Purdy², C. Welsh², S. Spiller², and H. Blackburn², ¹USDA, ARS, US Meat Animal Research Center, Clay Center, NE, ²National Animal Germplasm Program, Fort Collins, CO.
- W51 Association analysis of candidate SNPs on reproductive traits in swine. L. A. Rempel*, J. W. Holl, and G. A. Rohrer, USDA, ARS, US Meat Animal Research Center, Clay Center, NE.
- W52 Analysis of founder-specific inbreeding depression on Landrace sow longevity. J. Casellas*, L. Varona, N. Ibáñez-Escriche, and J. L. Noguera, *Genética i Millora Animal, IRTA-Lleida, Lleida, Spain.*
- W53 SNPs of LEP and FABP4 genes in *Bos indicus* and crosses: Segregation and association with meat traits. M. G. Dib*¹, R. A. Curi¹, L. A. L. Chardulo², A. C. Silveira¹, M. D. B. Arrigoni¹, and H. N. de Oliveira¹, ¹Faculdade de Medicina Veterinária e Zootecnia - UNESP, Botucatu, SP, Brazil, ²Instituto de Biociências - UNESP, Botucatu, SP, Brazil.
- W54 Markers on bovine chromosome 20 associated with fat related traits and incidence of contracting bovine respiratory disease. M. D. Garcia*¹, L. Matukumalli², T. L. Wheeler¹, S. D. Shackelford¹, M. Koohmaraie¹, T. P. L. Smith¹, and E. Casas¹, ¹USDA-ARS, U.S. Meat Animal Research Center, Clay Center, NE, ²USDA-ARS, Beltsville Animal Research Center, Beltsville, MD.
- W55 Identification and comparison of a second stearyl-CoA desaturase gene in pigs, sheep, and chickens. A. J. Lengi and B. A. Corl*, Virginia Polytechnic Institute and State University, Blacksburg.
- W56 Differential expression of cyclic AMP-responsive element modulator (CREM) transcription factor isoforms during boar spermatogenesis and in transcriptionally silent boar spermatozoa. S. Green* and B. L. Sartini, University of Rhode Island, Kingston.
- W57 Molecular analysis of the Mexican hairless pig in the Yucatan Peninsula. F. Cetz-Solis², A. Sierra-Vasquez*¹, A. Da Silva-Mariante⁴, S. Rezende-Paiva⁴, C. Cruz-Vazquez², and C. Lemus-Flores³, ¹Instituto Tecnológico de Conkal, Conkal, Yucatan, Mexico, ²Instituto Tecnológico el Llano, Aguascalientes, Mexico, ³Universidad Autónoma de Nayarit, Tepic, Nayarit, Mexico, ⁴Embrapa Cenargen, Brasília, DF, Brazil.

Companion Animals
Companion and Exotic Animal Biology
Exhibit Hall CDE

- W58 *Ancylostoma* spp. in dogs of beaches and fishing villages of Navolato, Sinaloa, Mexico. M. C. Rubio Robles*, F. G. Torres N, I. Sánchez A, J. Gaxiola M, G. Estrada S, M. López V, G. Silva H, S. M. Gaxiola C, and N. Castro del C, FMVZ Universidad Autónoma de Sinaloa, Culiacan, Sinaloa, Mexico.
- W59 The prevalence of fleas in dogs of beaches and fishing villages from Navolato, Sinaloa, Mexico. M. C. Rubio Robles*, J. Gaxiola M, G. Estrada S, M. López V, G. Silva H, I. Sánchez A, F. G. Torres N., S. M. Gaxiola C, and N. Castro del C, FMVZ Universidad Autónoma de Sinaloa., Culiacan, Sinaloa, Mexico.
- W60 Diagnostic potential of serum proteomic patterns in canine *Fusarium* mycotoxicosis. M. C. K. Leung* and T. K. Smith, University of Guelph, Guelph, ON, Canada.

- W61 Dietary lysine: Calorie ratios and their influence on nitrogen metabolism and digestibility in overweight mature dogs. G. Hibbard*¹, K. R. McLeod¹, D. L. Harmon¹, R. Yamka², and K. G. Friesen², ¹University of Kentucky, Lexington, ²Hill's Pet Nutrition, Inc., Topeka, KS.
- W62 Effect of added total sulfur amino acids and threonine on nitrogen balance in dogs. R. E. Bohaty*¹, M. R. C. de Godoy¹, K. R. McLeod¹, D. L. Harmon¹, R. M. Yamka², N. Z. Frantz², and K. G. Friesen², ¹University of Kentucky, Lexington, ²Hill's Pet Nutrition, Inc., Topeka, KS.
- W63 Effect of dietary protein level on urea production and protein turnover in the adult cat (*Felis catus*). T. J. Wester*¹, K. Weidgraaf¹, C. E. Ugarte¹, and M. H. Tavendale², ¹Massey University, New Zealand, ²AgResearch Ltd., Palmerston North, New Zealand.
- W64 Microbiological and immunological effects of two yeast-based complex fermentation ingredients on adult dogs. D. C. Hernot*¹, G. C. Fahey Jr.¹, S. Reeves², and M. Scott³, ¹University of Illinois, Urbana, ²Embria Health Sciences, Ankeny, IA, ³Diamond V Mills, Cedar Rapids, IA.
- W65 Nutrient levels in crop milk and plasma as an indicator of free-ranging American flamingo (*Phoenicopterus ruber ruber*) nutrient status. A. S. Hunt* and A. M. Ward, Fort Worth Zoo, Fort Worth, TX.

Dairy Foods

Milk, Dairy Food Chemistry and Microbiology

Exhibit Hall CDE

- W66 Inactivation of *Clostridium botulinum* type A neurotoxin in milk by high pressure processing. J. E. Schlessler*¹, R. Gerdes², G. E. Skinner¹, N. R. Reddy¹, and B. Parisi², ¹FDA, National Center for Food Safety, Summit, IL, ²Illinois Institute of Technology, National Center for Food Safety, Summit, IL.
- W67 Changes in fatty acid profiles of Awassi ewe and Damascus goat colostrums during ten days postpartum. Z. Guler*¹, M. Keskin¹, S. Gül¹, and Y. W. Park², ¹Mustafa Kemal University, Antakya, Hatay, Turkey, ²Fort Valley State University, Fort Valley, GA.
- W68 Interaction between β -lactoglobulin and dextran sulfate at near neutral pH and their effect on thermal stability. B. Vardhanabuthi*¹, E. A. Foegeding¹, U. Yucel², and J. Coupland², ¹North Carolina State University, Raleigh, ²Pennsylvania State University, University Park.
- W69 Using lactic acid bacteria to detect chemical substances in milk. A. AbuGhazaleh*¹ and S. Ibrahim², ¹Southern Illinois University, Carbondale, ²North Carolina A&T University, Greensboro.
- W70 Development of symbiotic low fat buffalo milk yogurt. X. Han*² and M. Guo¹, ¹University of Vermont, Burlington, ²Harbin Institute of Technology, Harbin, China.
- W71 Presence of geraniol in bovine milk following topical application as a natural insecticide. D. M. Watson*, J. P. Evans, R. E. Miracle, M. A. Drake, S. P. Washburn, and D. W. Watson, North Carolina State University, Raleigh.
- W72 Comparative study of freeze-dried milk powder to spray-dried milk powder in water adsorption and stability. M. H. Seo*, S. H. Kim, J. Ahn, and H. S. Kwak, Sejong University, Seoul, Korea.
- W73 Comparative study of reconstituted milk made by freeze-dried milk powder to control reconstituted milk. S. I. Ahn*, S. H. Kim, J. Ahn, and H. S. Kwak, Sejong University, Seoul, Korea.
- W74 Hysteresis of buffer capacity curves of cow, goat and sheep milks. J. Li*, M. Corredig, and A. Hill, University of Guelph, Guelph, ON, Canada.
- W75 Effects of yogurt fermentation bacteria on milk-based bioactive peptides. M. Paul and G. Somkuti*, USDA-ARS-ERRC, Wyndmoor, PA.
- W76 Simplified petrifilm assay for lactococcus phage. Y. C. Tseng* and C. L. Hicks, University of Kentucky, Lexington.
- W77 Construction of an integrative vector for recombinant gene expression in *Streptococcus thermophilus*. J. A. Renye* and G. A. Somkuti, USDA-ARS-ERRC.
- W78 Fresh style panela cheese as a vehicle for probiotics and resistant starch. M. C. Escobar-Ramirez*¹, S. L. Amaya-Llano¹, M. Singh², and M. J. Miller³, ¹PROPAC, Universidad Autónoma de Querétaro, Querétaro, Qro, Mexico, ²National Center for Agricultural Utilization Research, Peoria, IL, ³University of Illinois, Urbana.
- W79 α -Ketoglutarate biosynthesis in *Lactococcus lactis* strains isolated from specific natural niches. N. Gutiérrez-Méndez, E. Valenzuela-Soto, A. F. González-Córdova, and B. Vallejo-Córdoba*, Centro de Investigación en Alimentación y Desarrollo, A.C. (CIAD, A.C.), Hermosillo, Sonora, México.
- W80 Characterization of *Streptococcus thermophilus* isolates from traditional Turkish yogurts. N. Altay*^{1,2}, G. C. Gurakan¹, and J. L. Steele³, ¹Middle East Technical University, Ankara, Turkey, ²Selcuk University, Konya, Turkey, ³University of Wisconsin, Madison.

- W81 Influence of encapsulated probiotic bacteria on the characteristics of plain yogurt. E. Noland and K. Aryana*, *Louisiana State University, Baton Rouge*.
- W82 Evaluation of buffering capacity of amino acid and milk protein ingredients in acidic conditions. V. Harrison*, D. Song, F. O. Uruakpa, C. W. Seo, and S. A. Ibrahim, *North Carolina A&T State University, Greensboro*.
- W83 Use of beta-cyclodextrin to lower level of cholesterol in milk and its influence on activity of probiotic bacteria. L. Alonso^{1,2}, P. Cuesta*¹, J. Fontecha³, M. Juarez³, and S. E. Gilliland¹, ¹*Oklahoma State University, Stillwater*, ²*Instituto de Productos Lacteos. CSIS, Asturias, Spain*, ³*Instituto del Frio. CSIC, Madrid, Spain*.
- W84 Effect of prebiotics on probiotic growth curves and resulting pH changes in skim milk and a model system. D. Olson* and K. Aryana, *Louisiana State University, Baton Rouge*.
- W85 Evaluation of the effect of bovine colostrum on gene expression in *E. coli*. M. Worku*, Z. Liu, and S. Oh, *North Carolina A&T State University, Greensboro*.
- W86 Binding characterization between lactic acid bacteria and milk fat globule membrane in different dairy products. G. Brisson* and R. Jimenez-Flores, *California Polytechnic State University, San Luis Obispo*.
- W87 Biophysical analysis of the milk fat globule membrane. C. Cabral, T. Nelson, D. Rios, D. Gragson, and R. Jimenez-Flores*, *California Polytechnic State University, San Luis Obispo*.
- W88 Methods for screening rropy milk producers in raw milk samples. A. Cano, A. Laubscher*, and R. Jimenez-Flores, *California Polytechnic State University, San Luis Obispo*.
- W89 Effect of pH and reconstitution methods on heat stability of milk protein concentrate. V. Sikand*, B. L. Golden, and P. S. Tong, *Dairy Products Technology Center, San Luis Obispo, CA*.
- W90 The concentration of lactoferrin in the bovine colostrum and immune milk. J. B. Cheng¹, J. Q. Wang*¹, D. P. Bu¹, G. L. Liu¹, C. G. Zhang^{1,2}, X. L. Dong^{1,2}, H. Y. Wei¹, L. Y. Zhou¹, and K. L. Liu¹, ¹*State Key Laboratory of Animal Nutrition, Institute of Animal Science, Chinese Academy of Agricultural Sciences, Beijing, China*, ²*College of Animal Science and Technology of Yangzhou University, Yangzhou, China*.

Forages and Pastures II Exhibit Hall CDE

- W91 The influence of wilting on the quality of *Acacia mangium* silage. T. Clavero* and R. Razz, *Centro de Transferencia de Tecnologia en Pastos y Forrajes. Universidad del Zulia, Maracaibo, Zulia, Venezuela*.
- W92 Mulberry (*Morus alba*) fodder response to increasing levels of organic nitrogen. J. A. Elizondo-Salazar* and C. Boschini-Figueroa, *Estación Experimental Alfredo Volio Mata, Facultad de Ciencias Agroalimentarias, Universidad de Costa Rica, Costa Rica*.
- W93 Effects of one-seed juniper on intake, rumen fermentation, and plasma amino acids in sheep and goats fed supplemental protein. S. A. Utsumi¹, A. F. Cibils¹, R. E. Estell*², S. Soto-Navarro¹, and D. M. Hallford¹, ¹*New Mexico State University, Las Cruces*, ²*USDA/ARS Jornada Experimental Range, Las Cruces, NM*.
- W94 Effects of one-seed juniper and polyethylene glycol on intake, rumen fermentation, and plasma amino acids in sheep and goats fed supplemental protein and tannins. S. A. Utsumi¹, A. F. Cibils¹, R. E. Estell*², S. Soto-Navarro¹, and D. M. Hallford¹, ¹*New Mexico State University, Las Cruces*, ²*USDA/ARS Jornada Experimental Range, Las Cruces, NM*.
- W95 Effect of essential oils on *in vitro* NDF digestion. M. D. Tassoul*, J. P. Goeser, R. D. Shaver, and D. K. Combs, *University of Wisconsin, Madison*.
- W96 Nutritive evaluation of three browse tree foliages during rain and dry seasons: Total tannins and *in situ* digestibility in cattle and goats. R. Rojo*¹, D. López¹, F. Vázquez¹, O. Vázquez¹, B. Albarrán¹, S. Rebollar¹, J. Hernández¹, D. Cardoso¹, F. González¹, E. Dorantes¹, F. Avilés¹, A. García¹, and C. Narciso², ¹*Universidad Autónoma del Estado de México, Temascaltepec, Estado de México, México*, ²*Colegio de Postgraduados, Córdoba, Veracruz, México*.
- W97 Effect of fodder tree species, season, and inoculum source on *in vitro* gas production from foliage. L. M. Camacho*¹, R. Rojo¹, G. D. Mendoza², F. Avilés¹, D. López¹, D. Cardoso¹, S. Rebollar¹, and N. Pescador¹, ¹*Universidad Autónoma del Estado de México, Temascaltepec, Estado de México, México*, ²*Universidad Autónoma Metropolitana, Distrito Federal, México*.
- W98 Ozone and nitrogen deposition effects on nutritive quality of a species-rich subalpine grassland. M. K. Cline*¹, J. C. Lin¹, K. Nadarajah¹, M. Volk², R. B. Muntifering¹, S. Bassin², and J. Fuhrer², ¹*Auburn University, Auburn, AL*, ²*Swiss Federal Research Station for Agroecology and Agriculture, Zurich, Switzerland*.

- W99 Forage quality of native pasture in an alpine area for the production of Bitto cheese. S. Colombini*, A. Tamburini, A. Sandrucci, and L. Rapetti, *Department of Animal Science, University of Milan, Milan, Italy.*
- W100 Mineral profiles of selected grass and legume species as affected by liquid hog manure and inorganic fertilizer. G. N. Gozho¹, M. Undi², J. Sletmoen², F. Stewart³, J. C. Plaizier², and K. M. Wittenberg², ¹University of Saskatchewan, Saskatoon, Saskatchewan, Canada, ²University of Manitoba, Winnipeg, Manitoba, Canada, ³Manitoba Agriculture, Food and Rural Initiatives, Beausejour, Manitoba, Canada.
- W101 Split application of nitrogen on perennial grasses compared to manure applications. D. J. R. Cherney*, J. H. Cherney, Q. Ketterings, and M. Davis, *Cornell University, Ithaca, NY.*
- W102 *In vitro* dry matter digestibilities of perennial peanut, annual peanut, alfalfa, and bermudagrass forages in horses. J. V. Eckert*, R. O. Myer, L. K. Warren, J. L. Foster, and J. H. Brendemuhl, *University of Florida, Gainesville.*
- W103 Forage management affects bermudagrass forage yield and nutritive value. A. E. Lee*¹, A. V. Riojas¹, B. D. Lambert^{1,2}, and J. P. Muir², ¹Tarleton State University, Stephenville, TX, ²Texas AgriLife Research, Stephenville, TX.
- W104 Forage nutritive value of crown rust resistant and susceptible oat cultivars in Northern Mexico. H. Bernal-Barragán*¹, R. Quintero-Martínez¹, J. A. Hernández-Aguilar¹, M. A. Cerrillo-Soto², A. S. Juárez-Reyes², E. Gutiérrez-Ornelas¹, J. E. Treviño-Ramírez¹, and F. Zavala-García¹, ¹Facultad de Agronomía UANL, Escobedo, N.L., México, ²Facultad de Medicina Veterinaria y Zootecnia UJED, Durango, Dgo., México.
- W105 *In vitro* gas production characteristics and metabolizable energy content in crown rust (*Puccinia coronata*) resistant and susceptible oat (*Avena sativa* L.) cultivars. M. A. Cerrillo-Soto*¹, A. S. Juárez-Reyes¹, H. Bernal-Barragán², R. Quintero-Martínez², J. A. Hernández-Aguilar², E. Gutiérrez-Ornelas², J. E. Treviño-Ramírez², and F. Zavala-García², ¹Facultad de Medicina Veterinaria y Zootecnia UJED, Durango, Dgo., México, ²Facultad de Agronomía UANL, Escobedo, N.L. México.
- W106 Chemical composition, metabolizable energy content and *in vitro* gas production of grasses from North Mexico. E. Herrera-Torres, M. Murillo-Ortiz, M. A. Cerrillo-Soto*, O. Reyes-Estrada, and A. S. Juárez-Reyes, *Universidad Juárez del Estado de Durango, Durango, Dgo., Mexico.*
- W107 Evaluation of African star grass pastures grazed under the leaf stage concept on commercial dairy farms in the humid tropics of Costa Rica. J. M. I. Sánchez*^{1,2}, S. Salazar^{1,3}, and A. Martínez^{1,2}, ¹Universidad de Costa Rica, San José, Costa Rica, ²Centro de Investigación en Nutrición Animal, San José, Costa Rica, ³Escuela de Zootecnia, San José, Costa Rica.
- W108 Production of *Brachiaria brizantha* and *Panicum maximum* forages according to period of intercropping with corn and nitrogen fertilization. R. S. Barducci¹, C. Costa¹, T. C. Putarov¹, L. M. N. Sarti¹, E. S. Ogawa¹, D. D. Millen¹, R. D. L. Pacheco*¹, J. P. S. T. Bastos¹, T. M. Mariani¹, T. C. B. da Silva², and S. R. Baldin¹, ¹FMVZ/UNESP, Botucatu, São Paulo, Brazil, ²Faculdade de Zootecnia/UNESP, Dracena, São Paulo, Brazil.
- W109 Production of corn grain with *Brachiaria brizantha* and *Panicum maximum* forages according to period of intercropping. R. S. Barducci¹, C. Costa¹, T. C. Putarov¹, L. M. N. Sarti¹, E. S. Ogawa¹, D. D. Millen*¹, R. D. L. Pacheco¹, J. P. S. T. Bastos¹, T. M. Mariani¹, S. R. Baldin¹, and T. C. B. da Silva², ¹FMVZ/UNESP, Botucatu, São Paulo, Brazil, ²Faculdade de Zootecnia/UNESP, Dracena, São Paulo, Brazil.
- W110 Use of a nutraceutical feed produced by solid state fermentation of apple pomace in lactating dairy cows diets. C. Rodríguez-Muela*, F. J. Gutiérrez-Piñ, M. A. Gallegos-Acevedo, H. Garcí-Nevarez, H. E. Rodríguez-Ramírez, O. Ruiz-Barrera, and J. Jiménez-Castro, *Universidad Autónoma de Chihuahua, Chihuahua, Mexico.*
- W111 Use of feed produced by solid state fermentation of apple pomace (manzanarina) in lambs feedlot diets. C. Hernández-Gómez*, C. Rodríguez-Muela, J. A. Ortega-Gutiérrez, H. E. Rodríguez-Ramírez, F. Salvador-Torres, A. Flores-Mariñelarena, and G. Corral-Flores, *Universidad Autónoma de Chihuahua, Chihuahua, México.*
- W112 Fermentation of apple waste products added with bakery residues. Y. Castillo-Castillo¹, O. Ruiz-Barrera*¹, D. Cruz-Guillen¹, A. Elias-Iglesias², C. Rodríguez-Muela¹, J. Ortega-Gutiérrez¹, O. La O-Leon², and C. Arzola-Alvarez¹, ¹Facultad de Zootecnia, Universidad Autonoma de Chihuahua, Chihuahua, Chihuahua, Mexico, ²Instituto de Ciencia Animal, La Habana, Cuba.
- W113 Fiber degradation during solid state fermentation of apple pomace. H. E. Rodríguez-Ramírez*, C. Rodríguez-Muela, H. A. Castillo-Gonzalez, J. A. Ortega-Gutiérrez, O. Ruiz-Barrera, D. Villagran-Torres, C. Hernández-Gómez, S. Romero-Villalobos, and C. A. Arzola-Alvarez, *Universidad Autonoma de Chihuahua, Chihuahua, Mexico.*

Nonruminant Nutrition Carbohydrate and Lipids Exhibit Hall CDE

- W114 Effect of xylanase supplementation to wheat-rye based diet on the energy availability and the performance of ducks. L. Babinszky*¹, J. Tossenberger¹, and I. Kühn², ¹Kaposvár University, Kaposvár, Hungary, ²AB Enzymes GmbH, Darmstadt, Germany.
- W115 Effect of phytase supplementation of the diets on the digestibility and urinary excretion of phosphorous and calcium in weaned piglets. J. Tossenberger¹, I. Kühn², and L. Babinszky*¹, ¹Kaposvár University, Kaposvár, Hungary, ²AB Enzymes GmbH, Darmstadt, Germany.

- W116 Ileal and post-ileal digestibility of heat treated cereals in weaners. J. Tossenberger¹, L. Babinszky^{*1}, and S. Reischl², ¹Kaposvár University, Kaposvár, Hungary, ²Agrokomplex C.S. Zrt., Zichyújfalu, Hungary.
- W117 Digestible and metabolizable energy content of high-oil corn for growing pigs. Y. L. Ma^{*1}, G. L. Cromwell¹, M. D. Lindemann¹, and K. E. Nestor Jr.², ¹University of Kentucky, Lexington, ²Mycogen Seed, Indianapolis, IN.
- W118 Effects of heat processing of corn and rice on faecal digestibility of nutrients and adipose tissue fatty acid composition in young pigs. D. Menoyo, M. P. Serrano, D. G. Valencia, R. Lázaro, and G. G. Mateos*, *Universidad Politécnica de Madrid, Spain.*
- W119 Evaluation of a dynamic *in vitro* model to simulate the porcine ileal digestion of diets differing in the carbohydrate composition. J. P. Meunier^{*1}, E. Manzanilla², M. Anguita², S. Denis³, J. F. Pérez², J. Gasa², J. P. Cardot³, F. Garcia², and M. Alric³, ¹Pancosma Research, Geneva, Switzerland, ²Universitat Autònoma de Barcelona, Spain, ³University of Auvergne, France.
- W120 Performance of weanling piglets offered low, medium or high lactose diets supplemented with a seaweed extract from *Laminaria spp.* D. A. Gahan¹, M. B. Lynch¹, J. J. Callan¹, J. T. O'Sullivan², and J. V. O'Doherty^{*1}, ¹University College Dublin, Ireland, ²Bioatlantis Ltd, Ireland.
- W121 Development of feeding program for gestating gilts and its effects on reproductive performance and progeny. L. G. Piao*, H. F. Long, W. S. Ju, J. H. Lee, H. K. Oh, and Y. Y. Kim, *Seoul National University, Seoul, South Korea.*
- W122 Dietary energy levels of gestating gilts on gestation parameters and reproductive performance. H. F. Long*, L. G. Piao, W. S. Ju, C. S. Chang, H. K. Oh, and Y. Y. Kim, *Seoul National University, Seoul, South Korea.*
- W123 The effect of dietary starch sources on the performance, nutrients digestibility and blood biochemical parameters in growing pigs. Q. Z. Dai², Y. Yin^{*1}, R. Huang¹, and T. Li¹, ¹Laboratory of Animal Nutrition and Health and Key Laboratory of Subtropical Agro-ecology, Institute of Subtropical Agriculture, Changsha, Hunan, P. R. China, ²Hunan Institute of Animal Science, Changsha, Hunan, P. R. China.
- W124 The effect of dietary starch sources on amino acids portal flux and balance in growing pigs. W. Wang, Y. Yin*, R. Huang, and T. Li, *Institute of Subtropical Agriculture, Changsha, Hunan, P. R. China.*
- W125 Intravenous glucose tolerance test in Ningxiang pigs. X. F. Kong¹, M. J. Bo¹, X. Y. Song¹, Y. L. Yin^{*1}, B. E. Tan¹, Z. Q. Liu¹, H. J. Xu¹, W. J. Tang¹, F. G. Yin¹, and G. Y. Wu^{1,2}, ¹The Chinese Academy of Sciences, Changsha, Hunan, P. R. China, ²Texas A&M University, College Station.
- W126 Evaluation of nutrient equivalency values of natuzyme for broiler chickens. M. Majdeddin*, M. Zaghari, and H. Moravej, *Tehran University, Karaj, Tehran, Iran.*
- W127 *In vitro* fermentation of diets incorporating different levels of carob pulp by rabbit cecal fluid. G.-B. Aziza^{*1}, B. Ridha¹, K. Abdelhamid², M.-L. Maria-Rosa³, and K. Abdeljabbar¹, ¹INAT, Tunis, Tunisia, ²INGREF, Institut National des Recherches en Génie Rural, Eaux et Forêts, Tunis, Tunisia, ³Escuela Polytechnica Superior, Universidade de Santiago de Compostela, Lugo, Spain.
- W128 Dietary fiber decreases fecal nutrient digestibility and ammonia emission in growing swine, but increases odor emission and odor intensity in air. W. Zhang¹, E. van Heugten^{*1}, T. van Kempen², V. Fellner¹, and P. Kai³, ¹North Carolina State University, Raleigh, ²Provimi RIC, St. Stevens Woluwe, Belgium, ³University of Aarhus, Horsens, Denmark.
- W129 Effects of different fiber level diets on normal microbiological floras in goose intestines. M. A. Zhang, B. W. Wang*, B. Yue, F. Y. Long, X. P. Wu, and X. H. Jia, *Qingdao Nongye University, Qingdao, Shandong Province, China.*
- W130 Stabilized rice bran improves weaning pig growth performance when feed in an antibiotic-free diet. T. Herfel, S. Jacobi, X. Lin, and J. Odle*, *North Carolina State University, Raleigh.*
- W131 Linseed oil addition alters swine adipose fatty acid composition. A. A. AbuGhazaleh*, G. Apgar, and W. Brown, *Southern Illinois University, Carbondale.*
- W132 Influence of glycerol and added fat on finishing pig performance. A. W. Duttlinger*, M. D. Tokach, S. S. Dritz, J. M. DeRouche, J. L. Nelssen, and R. D. Goodband, *Kansas State University, Manhattan.*
- W133 Conjugated linoleic acid and tryptophan supplementation improve immune response of weaned piglets. J. Morales¹, R. Gatnau², and C. Pineiro^{*1}, ¹PigCHAMP Pro Europa, SA, Segovia, Spain, ²Molimen, Barcelona, Spain.
- W134 Effect of conjugated linoleic acid on immune function and nutrition composition of duck. B. W. Wang*, Y. C. Wang, M. A. Zhang, B. Yue, L. Z. Jing, X. X. Wei, and G. L. Liu, *Qingdao Nongye University, Qingdao, Shandong Province, China.*
- W135 Efficiency of retention and conversion of α -linolenic acid (ALA) to other n-3 fatty acids (FA) in the whole body of growing gilts is reduced over time. H. R. Martínez-Ramírez* and C. F. M. de Lange, *University of Guelph, Guelph, ON, Canada.*
- W136 Effects of betaine, conjugated linoleic acid or both on nutrient digestibility of growing Iberian gilts. I. Fernandez-Figares*, L. Gonzalez Valero, J. M. Rodriguez-Lopez, R. Nieto, L. Manuel, and J. F. Aguilera, *CSIC (Spanish National Research Council), Granada, Spain.*

- W137 Effects of dietary coconut fat powder supplementation on performance, nutrient digestibility and blood and milk characteristics in lactating sow. W. T. Kim^{*1}, H. J. Kim¹, J. H. Cho¹, Y. J. Chen¹, J. S. Yoo¹, S. O. Shin¹, Y. Haung¹, J. D. Hancock², C. Y. Lee³, and I. H. Kim¹, ¹Dankook University, Cheonan, Chungnam, Korea, ²Kansas State University, Manhattan, ³Jinju National University, Gyeongnam, Korea.
- W138 Use of glycerol for glucose, glycogen and non-essential amino acid synthesis by embryos from small and large chicken eggs. N. E. Sunny, J. Moorefield, S. L. Owens, and B. J. Bequette*, *University of Maryland, College Park.*
- W139 The effect of feeding omega-3 fatty acids during the grower and early finisher phases on intramuscular fatty acid composition at market weight in pigs. S. A. Meers*, C. R. Dove, T. D. Pringle, and M. J. Azain, *University of Georgia, Athens.*
- W140 Effect of different dietary protein levels on lipid metabolism of subcutaneous adipose tissue in lean-type and fat-type fattening pigs. W. T. Gu¹, T. L. Liu², P. W. Xu¹, M. J. Bo¹, H. J. Xu¹, Y. L. Yin^{*1}, X. F. Kong¹, T. J. Li¹, Z. Q. Liu¹, W. J. Tang¹, and R. L. Huang¹, ¹The Chinese Academy of Sciences, Changsha, Hunan, P.R.China, ²Wuhan Polytechnic University, Wuhan, China.
- W141 Cloning and characterization of porcine adipose triglyceride lipase (pATGL) gene. T. Shan, Y. Wang*, T. Wu, J. Guo, G. Yao, J. Feng, and Z. Xu, *Zhejiang University, Hangzhou, P. R. China.*

**Physiology and Endocrinology
Gestation and Lactation Physiology
Exhibit Hall CDE**

- W142 Mathematical simulation to assess the validity of Bonnier's equation for estimating the frequency of monozygous twinning in a population of Holstein cattle. N. Silva del Río^{*1}, G. A. Broderick², and P. M. Fricke¹, ¹University of Wisconsin, Madison, ²US Dairy Forage Research Center, Madison, WI.
- W143 Activated caspase-3 activity in the bovine fetal ovary. N. M. Barkley*, M. F. Smith, and H. A. Garverick, *University of Missouri, Columbia.*
- W144 Multiple fibroblast growth factors stimulate interferon-tau production in bovine trophectoderm. K. A. Pennington* and A. D. Ealy, *University of Florida, Gainesville.*
- W145 Identification and characterization of three MX1 isoforms in sheep. D. S. Clark^{*1}, K. Williams², and T. L. Ott¹, ¹Pennsylvania State University, University Park, ²University of Idaho, Moscow.
- W146 Effects of nutrient restriction during early gestation on postnatal calf growth. C. L. Bailey*, N. M. Long, M. J. Prado-Cooper, E. C. Wright, and R. P. Wettemann, *Oklahoma Agricultural Experiment Station, Stillwater, OK.*
- W147 Effects of nutrient restriction during early gestation on carcass and organ weights of beef steers. N. M. Long*, M. J. Prado-Cooper, C. R. Krehbiel, U. Desilva, and R. P. Wettemann, *Oklahoma State University, Stillwater.*
- W148 Effect of age at first calving on milk production and days open in first-parity Iranian Holstein dairy cows. A. Heravi Moussavi*, M. Danesh Mesgaran, and R. Noorbakhsh, *Ferdowsi University of Mashhad, Mashhad, Khorasan Razavi, Iran.*
- W149 Changes in muscle proteome of dairy cattle with onset of lactation. P. J. Tyler*, K. A. Cummins, D. M. Carpenter, and R. Sabharwal, *Auburn University, Auburn, AL.*

**Physiology and Endocrinology
Hormonal Control of the Estrous Cycle
Exhibit Hall CDE**

- W150 Immunosterilization of bitches with an anti-LHRH vaccine using CpG oligodeoxynucleotide as an adjuvant. R. Zanella¹, M. Ragagnin de Lima^{*4}, J. J. Reeves¹, V. Conforti², D. DeAvila¹, A. Ferreira Marques⁴, S. A. Messina¹, R. Bogden³, and E. L. Zanella⁴, ¹Washington State University, Pullman, ²Cincinnati Zoo & Botanical Garden, Cincinnati, OH, ³Amplicon Express, Pullman, WA, ⁴Universidade de Passo Fundo, Passo Fundo, RS, Brazil.
- W151 Ovarian follicular dynamics during the interovulatory interval in Najdi goats. H. Kohram^{*1,2}, S. Gooraninejad², A. Motaghedi², G. Mohammadi², and E. Dirandeh¹, ¹Tehran University, Karaj, Tehran, Iran, ²Shahid Chamran University, Ahvaz, Khoozestan, Iran.
- W152 Alteration of ovarian follicular dynamics by GnRH in water buffaloes. H. Kohram^{*1,2}, G. Mohammadi², and E. Dirandeh¹, ¹Tehran University, Karaj, Tehran, Iran, ²Shahid Chamran University, Ahvaz, Khoozestan, Iran.
- W153 Effects of oral doses of colostrum on luteal regression and synchronization of estrus in dairy heifers. S. L. McKee*, S. P. Washburn, and C. S. Whisnant, *North Carolina State University, Raleigh.*

- W154 Plasma progesterone concentrations determined by commercial radioimmunoassay kit as puberty criteria for Brahman-crossbred heifers. R. F. Cooke*^{1,2}, B. R. Austin², and J. D. Arthington¹, ¹University of Florida - IFAS, Range Cattle Research and Education Center, Ona, ²University of Florida - IFAS, Animal Sciences, Gainesville.
- W155 Progesterone concentration during follicular development affects follicular fluid composition and uterine release of PGF_{2α} in dairy cows. R. L. A. Cerri*^{1,2}, F. Rivera², C. D. Narciso², R. A. Oliveira², R. C. Chebel², M. A. Amstalden³, W. W. Thatcher¹, and J. E. P. Santos¹, ¹University of Florida, Gainesville, ²University of California, Tulare, ³Texas A&M University, College Station.
- W156 Evidence that the diminished production of progesterone during estrous cycles of cattle with a low antral follicle count during follicular waves is repeatable and not caused by alterations in size of the corpus luteum. F. Jimenez-Krassel*¹, J. K. Folger¹, G. W. Smith¹, P. Lonergan², A. C. O. Evans², and J. J. Ireland¹, ¹Michigan State University, East Lansing, ²University College Dublin, Dublin, Ireland.
- W157 Protocols using progesterone intravaginal device for lactating Holstein cows. R. M. Santos*¹, D. G. B. Demétrio², J. L. M. Vasconcelos², B. L. Cardoso², F. M. Abreu², L. H. Cruppe², and S. Soriano³, ¹EAFUDI, Uberlândia, ²FMVZ-UNESP, Botucatu, ³Fazenda Colorado, Araras, Brazil.
- W158 Effects of high vs. low progesterone concentrations during Ovsynch on double ovulation rate and pregnancies per AI in high producing dairy cows. A. P. Cunha*¹, J. N. Guenther, M. J. Maroney, J. O. Giordano, A. B. Nascimento, S. Bas, H. Ayres, and M. C. Wiltbank, University of Wisconsin, Madison.
- W159 Effect of the third use of CIDRs on the pregnancy rate of beef cattle. W. A. Greene* and M. L. Borger, The Ohio State University, Wooster, OH.
- W160 Effect of the timing of CIDR insertion on the GnRH-induced LH surge and ovulatory response. G. A. Perry* and B. L. Perry, South Dakota State University, Brookings.
- W161 Ovarian activity and response to estrus synchronization with CIDR, β-estradiol and PGF_{2α} in Creole Rodeo compared to Hereford cows. J. A. Ramírez-Godínez*, J. P. Zárate-Martínez, F. A. Rodríguez-Almeida, and A. Flores Mariñelarena, Universidad Autonoma de Chihuahua, Chihuahua, Mexico.
- W162 Effect of progestin treatment on formation of persistent follicles in postpartum beef cows. M. E. Risley*, J. A. Atkins, and M. F. Smith, University of Missouri, Columbia.
- W163 Effect of duration of CIDR exposure on reproductive performance of beef heifers using a CIDR-based timed-AI protocol. A. Ahmadzadeh*¹, D. Gunn², and B. Glaze³, ¹University of Idaho, Moscow, ²University of Idaho Extension, Fort Hall, ³University of Idaho Extension, Twin Falls.
- W164 A field trial comparison of first service conception rates of Ovsynch-56 and CO-Synch-72 protocol in lactating dairy cattle. R. L. Nebel*¹, J. M. DeJarnette¹, M. R. Hershey², D. A. Whitlock², and C. E. Marshall¹, ¹Select Sires Inc., Plain City, OH, ²Select Sire Power, Rocky Mount, VA.
- W165 Effect of supplemental FSH during ovsynch in high producing Holstein cows. H. Ayres^{1,2}, R. M. Ferreira^{1,2}, A. P. Cunha*¹, R. R. Araújo¹, and M. C. Wiltbank¹, ¹University of Sao Paulo, Sao Paulo, Sao Paulo, Brazil, ²University of Wisconsin, Madison.
- W166 Administering human chorionic gonadotropin (hCG) 7 d prior to initiating a CO-Synch protocol. C. R. Dahlen*¹, G. Marquezini², A. DiCostanzo², S. L. Bird³, and G. C. Lamb⁴, ¹University of Minnesota, Crookston, ²University of Minnesota, St. Paul, ³University of Minnesota, Grand Rapids, ⁴University of Florida, Marianna.
- W167 Effect of human chorionic gonadotropin (hCG) on ovarian structure dynamics and concentrations of progesterone in cycling Holstein heifers. C. R. Dahlen*¹ and G. C. Lamb², ¹University of Minnesota, Crookston, ²University of Florida, Marianna.
- W168 Factors affecting ovulatory follicle size following follicular wave synchrony in beef heifers. J. A. Atkins, C. L. Johnson*, and M. F. Smith, University of Missouri, Columbia.
- W169 Early postpartum treatment of dairy cows with GnRH does not improve fertility. A. Ata and M. S. Gulay*, Mehmet Akif Ersoy University, Burdur, Turkey.
- W170 Factors associated with ovulatory follicle growth rate and diameter in postpartum beef cows. J. A. Atkins*¹, T. W. Geary², and M. F. Smith¹, ¹University of Missouri, Columbia, ²USDA ARS, Ft. Keogh, Miles City, MT.
- W171 Effect of reducing the period of follicle dominance in a timed AI protocol on reproduction of dairy cows. R. C. Chebel*¹, F. Rivera¹, C. Narciso¹, W. W. Thatcher², and J. E. P. Santos³, ¹University of California, Davis, ²University of Florida, Gainesville.
- W172 Effects of an additional PGF_{2α} and estradiol-17β during Ovsynch in lactating dairy cows. D. J. Brusveen*, A. H. Souza, and M. C. Wiltbank, University of Wisconsin, Madison.

**Production, Management and the Environment
Nutrient and Animal Management
Exhibit Hall CDE**

- W173 A mass balance computer model of nutrient flow for a California dairy. H. A. Johnson*, E. J. DePeters, J. G. Fadel, P. L. Price, P. H. Robinson, and D. Meyer, *University of California, Davis*.
- W174 Bacteroidales PCR for universal, human, hog, and ruminant fecal pollution markers. B. R. Min*^{1,2}, G. Giovanni³, N. Garcia³, E. Casarez³, H. Y. Kim¹, M. K. Ho¹, J. Chang¹, L. Chang¹, C. Bae¹, and P. Dyer², ¹*Ichthus Education Center, La Trinitaria, Chiapas, Mexico*, ²*Texas AgriLife Research, Vernon, TX*, ³*Texas AgriLife Research, El Paso, TX*.
- W175 Compost: A potential value-added product for dairy operations? E. M. Shane*¹, M. I. Endres¹, D. G. Johnson², and C. J. Rosen¹, ¹*University of Minnesota, St. Paul*, ²*University of Minnesota, Morris*.
- W176 Associations between non-dietary factors and dairy herd performance. A. Bach*^{1,2}, N. Valls³, A. Solans³, and T. Torrent⁴, ¹*ICREA, Barcelona, Spain*, ²*IRTA-Unitat de Remugants, Barcelona, Spain*, ³*CADI, Lleida, Spain*, ⁴*Pirenaica, Lleida, Spain*.
- W177 Boric acid and borax treatment of stored swine manure to reduce ammonia and hydrogen sulfide emissions from swine facilities. M. Yokoyama*, S. Hengemuehle, and R. von Bernuth, *Michigan State University, East Lansing*.
- W178 Effect of different feed push-up schedule on milk production, feed intake and behavior in Holstein dairy cows. D. V. Armstrong*¹, T. R. Bilby¹, V. Wuthirnarath², W. Sathonghon², and S. Rungruang², ¹*The University of Arizona, Tucson*, ²*Charoen Pokphand Foods Public Co. LTD, Bangkok, Thailand*.
- W179 Hydrated lime bedding treatment for mastitis control. T. A. McCaskey*, R. S. Chettri, C. R. McCarthy, M. B. Brady, and L. I. Chiba, *Auburn University, Auburn, AL*.
- W180 Bedding options for an alternative housing system for dairy cows. E. M. Shane*¹, M. I. Endres¹, D. G. Johnson², and J. K. Reneau¹, ¹*University of Minnesota, St. Paul*, ²*University of Minnesota, Morris*.
- W181 Effects of corn particle size and feeding management on dry matter intake, ruminal fermentation, chewing activity and nutrient digestibility in midlactation cows. Z. Cao*, S. Li, and M. Ma, *College of Animal Science & Technology, China Agricultural University, Beijing, China*.
- W182 Impact of simulated selection for feed efficiency and length of breeding season on beef life cycle performance. C. Williams* and T. Jenkins, *USDA, ARS, U.S. Meat Animal Research Center, Clay Center, NE*.
- W183 Agricultural sustainability: The environmental impact of using recombinant bovine somatotropin (rbST) to improve the productive efficiency of one million lactating dairy cows. J. L. Capper*¹, R. A. Cady², and D. E. Bauman¹, ¹*Cornell University, Ithaca, NY*, ²*Monsanto Company Animal Agriculture Group, St Louis, MO*.
- W184 Change in natural abundance of ¹⁵N and estimation of nitrogen losses from dairy manure during storage by mass balance and nitrogen to phosphorus ratio. M. J. Aguerre*¹, G. A. Broderick^{1,2}, and M. A. Wattiaux¹, ¹*University of Wisconsin, Madison*, ²*US Dairy Forage Research Center, Madison, WI*.
- W185 Performance and selenium incorporation in beef heifers grazing pastures growing in saline soils containing high levels of trace minerals. S. O. Juchem*^{1,2}, S. E. Benes², P. H. Robinson¹, P. Vasquez², M. Brito², G. Getachew³, and P. Chilbroste⁴, ¹*University of California, Davis*, ²*California State University, Fresno, CA*, ³*University of California, Davis, CA*, ⁴*Instituto Nacional de Investigaci3n Agropecuaria, Montevideo, Uruguay*.
- W186 Factors affecting milk component levels in Northern New York dairy herds. L. E. Chase*, W. C. Stone, C. M. Ryan, J. P. Tauzel, and T. R. Overton, *Cornell University, Ithaca, NY*.
- W187 Survival curves and reproductive risk factors for culling in dairy herds. A. De Vries*¹ and J. Olson², ¹*University of Florida, Gainesville*, ²*Pfizer Animal Health, Fort Collins, CO*.
- W188 Effect of concentrations of progesterone during a timed AI protocol on fertility of lactating dairy cows. J. R. Lima¹, J. E. Santos², F. Rivera*¹, C. D. Narciso¹, R. A. Oliveira¹, and R. C. Chebel¹, ¹*University of California Davis, Tulare, CA*, ²*University of Florida, Gainesville, FL*.
- W189 Effect of change in body condition score during the dry period on incidence of diseases and lactational and reproductive performance of Holstein cows. L. Lima¹, J. E. Santos², and R. C. Chebel*¹, ¹*University of California Davis, Tulare*, ²*University of Florida, Gainesville*.
- W190 Comparison of pregnancy diagnosis strategies by stochastic simulation. A. H. Sanders* and A. De Vries, *University of Florida, Gainesville*.
- W191 Supplementation of progesterone via CIDR inserts during ovulation synchronization protocols in lactating dairy cows. R. C. Chebel*¹, M. J. Al-Hassan², P. M. Fricke², J. E. Santos³, C. A. Martel⁴, J. S. Stevenson⁴, R. Garcia⁵, R. L. Ax⁵, and F. Moreira⁶, ¹*University of California Davis, Tulare*, ²*University of Wisconsin, Madison*, ³*University of Florida, Gainesville*, ⁴*Kansas State University, Manhattan*, ⁵*University of Arizona, Tucson*, ⁶*Pfizer Animal Health, New York, NY*.

- W192 Characterization of postpartum estrous behavior in lactating cows using radiotelemetry in a large dairy. C. R. Johnson^{*1}, M. W. Ayers², A. Ahmadzadeh³, S. Etter⁴, R. C. Chebel⁵, and J. C. Dalton¹, ¹*Caldwell Research and Extension Center, Caldwell, ID*, ²*Caine Veterinary Teaching Center, Caldwell, ID*, ³*University of Idaho, Moscow*, ⁴*Canyon County Extension, Caldwell, ID*, ⁵*University of California, Tulare*.
- W193 Effect of overnight pasture on metritis and milk production of transition cows. C. Goldhawk^{*1}, N. Chapinal^{1,2}, D. M. Veira², J. Rushen², A. M. de Passillé², D. M. Weary¹, and M. A. G. von Keyserlingk¹, ¹*University of British Columbia, Vancouver, BC, Canada*, ²*Pacific Agri-Food Research Centre, Agassiz, BC, Canada*.
- W194 Influence of hen's age on some productive indices of broilers in the hot humid southwestern Nigeria. O. T. F. Abanikannda¹, A. O. Leigh¹, O. Akinsola¹, I. S. Okoya^{*1}, O. N. Coker², I. O. Ola-Gbadamosi¹, and A. L. Dare³, ¹*Lagos State University, Ojo, Lagos State, Nigeria*, ²*S & D Farms Nigeria Limited, Odeda, Ogun State, Nigeria*, ³*Obasanjo Farms Nigeria Limited, Igbora, Ogun State, Nigeria*.

Ruminant Nutrition Management and Miscellaneous Additives – Dairy Exhibit Hall CDE

- W195 Effect of two levels of diet density and milking frequency on performance of Holstein fresh lactating cow. N. Aghaziaraty^{*}, H. Amanlou, D. Zahmatkesh, E. Mahjoubi, and S. Siari, *Zanjan University, Zanjan, Iran*.
- W196 Effect of applying bacterial inoculants to corn silage on the performance of dairy cattle. K. G. Arriola^{*}, A. T. Adesogan, S. C. Kim, T. W. Kang, A. F. Pedroso, O. C. Queiroz, J. L. Foster, and C. R. Staples, *University of Florida, Gainesville*.
- W197 Timing of herbage allocation on milk production and composition in mid-lactation dairy cows in winter. M. Vaccaro², F. Luparia^{1,2}, C. A. Cangiano¹, D. A. Garciarena¹, and G. A. Gagliostro^{*1}, ¹*Instituto Nacional de Tecnología Agropecuaria, INTA, Balcarce, Buenos Aires, Argentina*, ²*Facultad de Ciencias Agrarias, UNMdP, Balcarce, Buenos Aires, Argentina*.
- W198 Effects of feed bunk competition on the feeding behavior of growing dairy heifers. T. J. DeVries^{*1} and M. A. G. von Keyserlingk², ¹*University of Guelph, Kemptville, ON, Canada*, ²*The University of British Columbia, Vancouver, BC, Canada*.
- W199 Relationship between indices of energy status and plasma lipids, lipid-soluble vitamins and hepatic-derived export proteins in periparturient Holstein and Jersey cows. P. Rezamand^{*}, T. A. Hoagland, R. M. Clark, and S. M. Andrew, *University of Connecticut, Storrs*.
- W200 Effects of monensin and propylene-glycol on milk production and milk composition of Holstein lactating cows. H. Bahrami-Yekdangi, K. Rezayazdi, M. Dehghan-Banadaky^{*}, A. Nejati-Javaremi, and F. Fatehi, *University of Tehran, Tehran, Iran*.
- W201 Feed sorting in growing dairy heifers: Effects of dietary dilution. A. M. Greter^{*1}, T. J. DeVries², and M. A. G. von Keyserlingk¹, ¹*The University of British Columbia, Vancouver, BC, Canada*, ²*University of Guelph, Kemptville, ON, Canada*.
- W202 Fenugreek as forage for dairy cows 2. Effect on rumen fermentation and turnover. A. W. Alemu^{*} and L. Doepel, *University of Alberta, Edmonton, AB, Canada*.
- W203 Viability of commercial active dry yeast products decreases with high-temperature storage. J. Miranda^{*} and B. J. Bradford, *Kansas State University, Manhattan*.
- W204 Exogenous amylase enzymes for lactating dairy cows. C. M. Klingerman^{*}, E. E. McDonnell, W. Hu, M. C. Der Bedrosian, and L. Kung Jr., *University of Delaware, Newark*.
- W205 Evaluation of nutritional management strategies for cows with a short (40-d) dry period. H. M. Dann^{*1}, M. P. Carter¹, H. M. Gauthier¹, K. W. Cotanch¹, P. D. Krawczel¹, C. S. Mooney¹, C. S. Ballard¹, R. J. Grant¹, T. Eguchi², and T. Nakao², ¹*William H. Miner Agricultural Research Institute, Chazy, NY*, ²*ZEN-NOH National Federation of Agricultural Co-operative Associations, Tokyo, Japan*.
- W206 Effect of dietary malic acid supplementation on rumen methanogenesis and performance of lactating dairy cows at pasture. P. A. Foley¹, D. A. Kenny¹, D. K. Lovett¹, T. M. Boland^{*1}, and F. P. O'Mara², ¹*University College, Dublin, Ireland*, ²*Teagasc, Oak Park, Ireland*.
- W207 The impact of a blend of synthetic antioxidants (AGRADO[®] Plus) on milk production and milk fat synthesis when fed a diet high in unsaturated fatty acids. C. L. Preseault^{*1}, M. Vázquez-Añón², G. R. Bowman², C. S. Ballard³, H. M. Dann³, and A. L. Lock¹, ¹*University of Vermont, Burlington*, ²*Novus International Inc., St. Louis, MO*, ³*William H. Miner Agricultural Research Institute, Chazy, NY*.
- W208 Response of lactating cows to the supplementation with live yeast. L. L. Bitencourt^{*1}, M. N. Pereira¹, B. M. L. de Oliveira¹, J. R. M. Silva², G. S. Dias Júnior¹, F. Lopes¹, R. C. M. de Melo¹, and S. Siécola Júnior¹, ¹*Universidade Federal de Lavras, Lavras, MG, Brazil*, ²*Centro Federal de Educação Tecnológica, Januária, MG, Brazil*.
- W209 The effect of feed sorting on chewing behavior, production, and rumen fermentation in lactating dairy cows. D. D. Maulfair^{*}, M. Fustini, and A. J. Heinrichs, *The Pennsylvania State University, University Park*.

- W210 Effect of feed sorting on fecal particle size. M. Fustini^{*2}, D. D. Maulfair¹, A. J. Heinrichs¹, and A. Formigoni², ¹*The Pennsylvania State University, University Park*, ²*University of Bologna, Bologna, Italy*.
- W211 Interaction between particle sizes of alfalfa hay and concentrate on lactation performance, chewing activity, and ruminal pH of dairy cows. M. A. Bal^{*} and E. B. Buyukunal Bal, *Kahramanmaraş Sutcu Imam University, Turkey*.
- W212 Effects of live yeast supplementation on lactation performance and ruminal pH of dairy cows fed medium and high levels of dietary concentrate. M. A. Bal^{*1}, S. Goksu¹, and V. Akay², ¹*Kahramanmaraş Sutcu Imam University, Turkey*, ²*Global Nutritech Ltd., Kocaeli, Turkey*.
- W213 Efficacy of SOLIS[®], NOVASIL[™]Plus, and MTB-100[®] to reduce aflatoxin M₁ levels in milk of dairy cows fed aflatoxin. R. Kutz^{*1}, J. Sampson¹, D. Ledoux¹, J. Spain¹, and M. Vázquez-Añón², ¹*University of Missouri, Columbia*, ²*Novus International, St. Charles, MO*.
- W214 Effect of an essential oil blend on performance of periparturient and early lactation dairy cows. M. D. Tassoul^{*} and R. D. Shaver, *University of Wisconsin, Madison*.
- W215 Effects of essential oil combinations on *in vitro* rumen microbial fermentation of a high-concentrate diet for beef cattle. I. Fandiño¹, S. Calsamiglia¹, A. Ferret¹, D. Moya¹, J. Martín-Tereso², and H. ter Wijlen^{*2}, ¹*Universitat Autònoma de Barcelona, Spain*, ²*Nutreco, The Netherlands*.
- W216 Dose-response effects of Rumensin[®] supplementation on ruminal digestion kinetics of fiber and starch. M. S. Allen and Y. Ying^{*}, *Michigan State University, East Lansing*.
- W217 Effect of feeding essential oils and monensin on fatty acid profiles of milk fat. M. L. He^{*1}, W. Z. Yang¹, C. Benchaar², A. V. Chaves¹, and T. A. McAllister¹, ¹*Agriculture and Agri-Food Canada, Research Centre, Lethbridge, AB, Canada*, ²*Agriculture and Agri-Food Canada, Dairy and Swine R&D Centre, Sherbrooke, QC, Canada*.
- W218 Effect of abomasal infusion of formate on milk protein of cows fed a methionine deficient diet. J. A. A. Pires^{*}, N. J. Benevenga, G. A. Broderick, and R. R. Grummer, *University of Wisconsin, Madison*.
- W219 Feeding rumen-protected choline reduces the risk of hepatic lipidosis in transition dairy cows. F. S. Lima¹, B. A. Barton^{*2}, and J. E. P. Santos¹, ¹*University of Florida, Gainesville*, ²*Balchem Co., New Hampton, NY*.
- W220 Effects of alcohol-fermented feedstuff on the feed intake, feed efficiency, milk quality and profitability of Holstein cows. J. K. Choi¹, B. W. Kim², and J. S. Shin^{*2}, ¹*Dae Han Feed, Incheon, Kyonggee, South Korea*, ²*Kangwon National University, Chuncheon, Kangwon, South Korea*.
- W221 Effect of feeding polyphenols on growth, health, nutrient digestion, and immunocompetence of calves. R. A. Oliveira¹, C. D. Narciso¹, R. Bisinotto¹, M. A. Ballou^{*2}, and J. E. P. Santos¹, ¹*University of Florida, Gainesville*, ²*Texas Tech University, Lubbock*.
- W222 Changes in milk aflatoxin concentrations in response to investigational sequestering agents added to aflatoxin-contaminated diets fed to lactating Holstein cows. L. Waltman^{*}, S. Davidson, B. A. Hopkins, G. W. Smith, and L. W. Whitlow, *North Carolina State University, Raleigh*.
- W223 Effect of monensin concentration on dry matter intake during the transition period of lactating dairy cows. M. A. Shah^{*1}, G. Schroeder¹, B. D. Strang¹, and H. B. Green², ¹*Cargill Animal Nutrition, Elk River, MN*, ²*Elanco Animal Health, Greenfield, IN*.
- W224 Effect of malic acid on rumen fermentation *in vitro* with DHA diet. L. Liu, J. Q. Wang^{*}, D. P. Bu, S. J. Liu, K. L. Liu, H. Y. Wei, and L. Y. Zhou, *Chinese Academy of Agricultural Sciences, Beijing, China*.
- W225 Effect of physical particle size on ruminal and post-ruminal disappearance of nutrients of a mixed concentrate in Holstein steers. H. Jahani-Azizabadi¹, M. Danesh Mesgaran^{*1}, and A. Rahmatimanesh², ¹*Ferdowsi University of Mashhad, Mashhad, Mashhad, Iran*, ²*Heram Talae Shargh Feed Mill Company, Nishabour, Iran*.
- W226 Influence of an α -amylase on *in vitro* ruminal fermentation and starch degradation. W. Hu^{*1}, M. E. Persia², and L. Kung Jr.¹, ¹*University of Delaware, Newark*, ²*Syngenta Animal Nutrition, Research Triangle Park, NC*.
- W227 N and energy synchronization of barley: Effect of variety and growth year. P. Yu^{*} and K. Hart, *University of Saskatchewan, Saskatoon, SK, Canada*.
- W228 Effects of fibrolytic enzymes on *in vitro* digestibility of destoned olive cake. D. Elia¹, P. P. Danieli¹, P. Bani², and U. Bernabucci^{*1}, ¹*Dipartimento di Produzioni Animali, Viterbo, Italy*, ²*Istituto di Zootecnica, Piacenza, Italy*.
- W229 The effect of alcohol fermented feedstuff made of byproduct on *in vitro* fermentation characteristics and NDF disappearance. J. S. Shin¹, G. Z. Lin², and B. W. Kim^{*1}, ¹*Kangwon National University, Chuncheon, Kangwon, South Korea*, ²*Linyi Normal University, Linyi, Shandong, China*.
- W230 Comparison of chemical composition and digestibility among wheat straws treated by white-rot fungi. O. D. Montañez-Valdez^{*1}, J. H. Avellaneda-Cevallos², E. O. Garcia-Flores³, J. M. Tapia-Gonzalez¹, G. Rocha-Chavez¹, I. E. Morales-Zambrano¹, and E. C. Guerra-Medina³, ¹*Centro Universitario del Sur de la Universidad de Guadalajara, Ciudad Guzman, Jalisco, México*, ²*Universidad Técnica Estatal de Quevedo, Quevedo, Los Rios, Ecuador*, ³*Centro Universitario de la Costa Sur de la Universidad de Guadalajara, Autlán de la Grana, Jalisco, México*.

- W231 Effects of genetics and water management on corn plant NDF digestibility. I. Fusaro^{*1}, N. Brogna², A. Palmonari², G. Biagi², C. J. Sniffen³, and A. Formigoni², ¹*Dipartimento di Scienze Degli Alimenti, Università di Teramo, Teramo, Italy*, ²*DIMORFIPA, Università di Bologna, Ozzano dell'Emilia, Bologna, Italy*, ³*Fencrest, LLC., Holderness, NH*.
- W232 Effects of alfalfa inclusion rate on productivity of lactating dairy cattle fed wet corn gluten feed based diets. C. R. Mullins^{*1}, K. N. Grigsby², and B. J. Bradford¹, ¹*Kansas State University, Manhattan, Kansas*, ²*Cargill, Inc., Blair, NE*.
- W233 Gene expression for enzymes involved with volatile fatty acid and glucose metabolism are affected by the dietary forage-to-concentrate ratio. G. B. Penner^{*1}, M. Taniguchi¹, L. L. Guan¹, K. A. Beauchemin², and M. Oba¹, ¹*University of Alberta, Edmonton, Alberta, Canada*, ²*Agriculture and Agri-Food Canada, Lethbridge, Alberta, Canada*.

Ruminant Nutrition Proteins and Amino Acids - Beef, Sheep and Miscellaneous Ruminants Exhibit Hall CDE

- W234 Effect of dietary CP level on visceral organ mass and the protein expression of ATP synthase and Na⁺/K⁺-ATPase in steers. Y. J. Wang^{*}, S. Holligan, H. Salim, M. Z. Fan, B. W. McBride, and K. C. Swanson, *University of Guelph, Guelph, ON, Canada*.
- W235 Intake and total and partial digestibility of nutrients, ruminal pH and ammonia concentration in beef cattle fed diets containing soybean silage. J. P. Rigueira, O. G. Pereira^{*}, M. I. Leão, S. C. Valadares Filho, and R. Garcia, *Universidade Federal de Viçosa, Viçosa, Minas Gerais, Brazil*.
- W236 Dry matter intake and performance of Nellore steers fed diets based on different proportions of soybean and corn silages. W. F. Souza¹, O. G. Pereira^{*1}, K. G. Ribeiro², S. C. Valadares Filho¹, A. S. Chaves¹, F. Zamuner¹, and G. A. Aguiar¹, ¹*Universidade Federal de Viçosa, Viçosa, Minas Gerais, Brazil*, ²*Universidade Federal dos Vales do Jequitinhonha e Mucuri, Diamantina, Minas Gerais, Brazil*.
- W237 Efficacy of condensed glutamic acid fermentation solubles as a nitrogen source in ruminant diets. A. I. Soria-Flores^{*} and L. L. Berger, *University of Illinois, Urbana*.
- W238 *In vitro* gas production kinetics of protein sources used in sheep nutrition. A. S. Juarez-Reyes^{*1}, M. Murillo-Ortiz¹, M. A. Cerrillo-Soto¹, J. F. Obregon², and F. G. Rios², ¹*FMVZ-Universidad Juarez del Estado de Durango, Durango, Durango Mexico*, ²*FMVZ-Universidad Autonoma de Sinaloa, Culiacan, Sinaloa, Mexico*.
- W239 Effects of dried distillers grains with solubles as a replacement for soybean meal and corn in diets fed to Boer-cross feeder kids. R. Cox^{*}, T. Hutchens, G. Rentfrow, and G. Anderson, *University of Kentucky, Lexington*.
- W240 Effect of substitution of canola meal by cotton seed meal on apparent digestibility of diets for hair sheep. J. F. Obregon^{*}, L. E. Antonio, E. Vazquez, F. G. Rios, A. Estrada, and J. J. Portillo, *UASCA-205 FMVZ-Universidad Autonoma de Sinaloa, Culiacan, Sinaloa, Mexico*.
- W241 Apparent digestibility of diets for hair sheep elaborated with cull chickpeas, cotton seed meal and overcooked sesame meal. J. F. Obregon^{*}, S. Fernandez, E. Vazquez, F. G. Rios, J. M. Uriarte, and G. Contreras, *UASCA-205 FMVZ-Universidad Autonoma de Sinaloa, Culiacan, Sinaloa, Mexico*.
- W242 Oscillating dietary protein in finishing cattle rations to reduce nitrogen inputs, with or without subcutaneous implants does not affect performance or final carcass composition. C. R. Nightingale^{*}, K. L. Swyers, H. Han, T. E. Engle, and S. L. Archibeque, *Colorado State University, Fort Collins*.
- W243 Fractional protein synthesis rate (FSR) in intestinal mucosa of kids: Effect of a diet containing casein or soy protein. U. Schoenhusen¹, A. Floeter¹, S. Kuhla¹, P. Junghans¹, C. C. Metges¹, K. Huber², R. Zitan³, and H. M. Hammon^{*1}, ¹*Research Institute for the Biology of Farm Animals (FBN), Dummerstorf, Germany*, ²*School of Veterinary Medicine Hanover, Hanover, Germany*, ³*Institute of Animal Production, Nitra, Slovakia*.

Ruminant Nutrition Rumen Fermentation and Miscellaneous Additives - Beef Exhibit Hall CDE

- W244 Lignocellulolytic activity of *Pleurotus ostreatus* solid culture on barley straw. L. Luna-Rodriguez¹, M. Meneses-Mayo¹, G. Mendoza-Martinez², C. Montalvo-Paquini³, S. S. Gonzalez-Muñoz^{*1}, and O. Loera-Corral⁴, ¹*Colegio de Postgraduados, Montecillo, Edo. Mexico, Mexico*, ²*UAM Xochimilco, Mexico D.F.*, ³*Universidad Politecnica de Puebla, Puebla, Mexico*, ⁴*UAM Iztapalapa, Mexico D.F.*
- W245 Feedlot performance, carcass characteristics and liver abscesses in heifers fed MGA, Rumensin and Tylan continuously or withdrawn the last 35 days on feed. G. E. Sides^{*1}, R. S. Swingle², R. C. Borg¹, and W. M. Moseley¹, ¹*Pfizer Animal Health, Kalamazoo, MI*, ²*Cactus Feeders, Cactus, TX*.

- W246 Effects of feeding different dose levels of melengestrol acetate on feedlot performance, carcass characteristics and estrus activity of feedlot heifers. G. E. Sides^{*1}, O. A. Turgeon², W. C. Koers², M. S. Davis², K. Vander Pol², R. C. Borg¹, and D. J. Weigel¹, ¹Pfizer Animal Health, Kalamazoo, MI, ²Bos Technica Research Services, Inc., Salina, KS.
- W247 Effects of tannins supplementation on animal growth and *in vivo* ruminal bacterial populations associated with bloat in heifers grazing wheat forage. B. R. Min^{*1,4}, W. E. Pinchak¹, K. Hernandez², C. Hernandez³, M. E. Hume³, E. Valencia², and J. D. Fulford¹, ¹Texas AgriLife Research, Vernon, TX, ²University of Puerto Rico, Puerto Rico, ³USDA-ARS, Southern Plains Agricultural Research Center, Food & Safety Research Unit, College Station, TX, ⁴Ichthus Education Center, La Trinitaria, Chiapas, Mexico.
- W248 Carcass traits of grazing young bulls. H. J. Fernandes^{*1,2}, A. G. Silva², J. Cavali², A. A. Rocha², M. F. Paulino², L. M. Paiva^{1,2}, and R. M. Paula², ¹State University of Mato Grosso do Sul / FUNDECT, Brazil, ²Federal University of Viçosa, Brazil.
- W249 Influence of feed restriction and oral vitamin D and E supplementation on meat quality of Canchim heifers. S. A. Matsuhara^{1,3}, M. Parrili¹, M. D. B. Arrigoni¹, C. L. Martins¹, D. D. Millen¹, R. D. L. Pacheco^{*1}, M. V. Fossa¹, L. M. N. Sarti¹, J. P. S. T. Bastos¹, T. M. Mariani¹, H. N. de Oliveira¹, S. R. Baldin¹, T. C. B. da Silva², R. S. Barducci¹, R. d. O. Roça¹, ¹FMVZ/UNESP, Botucatu, São Paulo, Brazil, ²Faculdade de Zootecnia/UNESP, Dracena, São Paulo, Brazil, ³Apoio FAPESP.
- W250 Influence of feed restriction on performance and carcass traits of Canchim heifers. M. Parrili^{1,3}, S. A. Matsuhara¹, M. D. B. Arrigoni¹, C. L. Martins¹, D. D. Millen^{*1}, R. D. L. Pacheco¹, H. N. de Oliveira¹, M. V. Fossa¹, L. M. N. Sarti¹, T. M. Mariani¹, J. P. S. T. Bastos¹, S. R. Baldin¹, R. S. Barducci¹, and T. C. B. da Silva², ¹FMVZ/UNESP, Botucatu, São Paulo, Brazil, ²Faculdade de Zootecnia/UNESP, Dracena, São Paulo, Brazil, ³Apoio FAPESP.
- W251 Supplementation frequency effects on performance of steers grazing tropical grass. J. A. S. Morais¹, T. T. Berchielli^{*1}, M. F. S. Queiroz¹, R. A. Reis¹, M. A. Balsalobre², G. Fiorentini¹, S. F. Souza¹, and P. H. M. Dian¹, ¹Faculdade de Ciências Agrárias e Veterinárias - Campus de Jaboticabal/UNESP, ²Bellman Nutrição Animal.
- W252 Comparative effects of virginiamycin supplementation on growth-performance and dietary energetics of calf-fed Holstein steers. E. Ponce^{*1,2}, J. Lenin^{1,2}, U. Sanchez^{1,2}, N. Torrentera¹, and R. Zinn², ¹UABC, Mexicali, BC, Mexico, ²University of California, Davis, CA.
- W253 The effects of dexamethasone and Revalor-S[®] on growth, carcass quality and visceral organ and fat mass of finishing beef steers fed cracked corn. S. E. Kitts^{*}, S. W. El-Kadi, C. C. Taylor-Edwards, F. F. Korthaus, J. B. Cannon, A. F. Koontz, D. L. Harmon, E. S. Vanzant, and K. R. McLeod, University of Kentucky, Lexington.
- W254 Effect of feeding cinnamaldehyde essential oils and monensin on feedlot cattle performance. W. Z. Yang¹, C. Benchaar², M. L. He^{*1}, and K. A. Beauchemin¹, ¹Agriculture and Agri-Food Canada, Research Centre, Lethbridge, AB, Canada, ²Agriculture and Agri-Food Canada, Dairy and Swine R&D Centre, Sherbrooke, QC, Canada.
- W255 Effect of a rumen buffer derived from calcified seaweed on ruminal disappearance and fermentation in steers. O. D. Montañez-Valdez^{*1}, J. M. Pinos-Rodriguez², J. H. Avellaneda-Cevallos³, E. O. Garcia-Flores⁴, and E. C. Guerra-Medina⁴, ¹Centro Universitario del Sur de la Universidad de Guadalajara, Ciudad Guzmán, Jalisco, México, ²Universidad de San Luis Potosí, San Luis Potosí, México, ³Universidad Técnica Estatal de Quevedo, Ecuador, Quevedo, Los Ríos, Ecuador, ⁴Centro Universitario de la Costa Sur, Atlán de la Grana, Jalisco México.
- W256 Net energy and protein requirements for maintenance and gain of Nellore steers estimated with deuterium oxide. G. Aferrri^{*1}, P. R. Leme¹, A. S. C. Pereira¹, R. R. P. S. Corte¹, M. Z. Moreira¹, and D. P. D. Lanna¹, ¹Universidade de São Paulo, Pirassununga, São Paulo, Brasil, ²FAPESP, São Paulo, São Paulo, Brasil.
- W257 Venous blood gas in Holstein steers fed diets differing in concentrate to alfalfa hay ratios. M. Danesh Mesgaran^{*}, A. R. Vakili, and A. Heravi Mousavi, Ferdowsi University of Mashhad, Mashhad, Khorasan Razavi, Iran.
- W258 *In vitro* gas production kinetics of regional feedstuffs used in sheep diets in Northwest Mexico. A. S. Juarez-Reyes¹, G. Nevarez-Carrasco¹, M. A. Cerrillo-Soto^{*1}, J. F. Obregon², and F. G. Rios², ¹FMVZ-Universidad Juarez del Estado de Durango, Durango, Durango, Mexico, ²FMVZ-Universidad Autonoma de Sinaloa, Culiacan, Sinaloa, Mexico.
- W259 Effect of two doses of zilpaterol clorhidrate on productive performance and carcass characteristics of hair sheep in the feedlot. F. G. Rios^{*}, F. Leon, J. F. Obregon, J. A. Felix, D. C. Acosta, and J. J. Portillo, FMVZ-Universidad Autonoma de Sinaloa, Culiacan, Sinaloa, Mexico.
- W260 Effects of feeding a polyclonal antibody preparation against *Escherichia coli* O157:H7 on performance, carcass characteristics and *E. coli* O157:H7 fecal shedding of feedlot steers. N. DiLorenzo^{*}, C. R. Dahlen, and A. DiCostanzo, University of Minnesota, St. Paul.
- W261 Selenoprotein expression is induced during oxidative stress in beef cows. E. Terry, K. Brennan, J. Michal^{*}, K. Johnson, and R. Kincaid, Washington State University, Pullman.
- W262 Validation of a continuous *in vitro* system modeling the jejuno-ileal ecosystem of veal calves. M. Champod^{2,1}, S. Blanquet-Diot¹, D. Bravo², J. P. Meunier^{*2}, and M. Alric¹, ¹University of Auvergne, France, ²Pancosma Research, Geneva, Switzerland.
- W263 Maternal natural source vitamin E supplementation on suckling calf performance and immune response. M. J. Richardson^{*1}, S. L. Lake¹, S. D. Eicher², R. Lemenager¹, M. Einstein¹, and N. Pyatt³, ¹Purdue University, West Lafayette, IN, ²USDA-ARS, West Lafayette, IN, ³ADM Animal Nutrition Research, Decatur, IN.

- W264 The relation between plasma vitamin C, leptin and fat accumulation during the fattening period in Japanese Black steers. K. Hodate*, M. Hayashi, and K. Kido, *National Institute of Livestock and Grassland Science, Tsukuba, Ibaraki, Japan.*
- W265 Performance, carcass characteristics and IGF-I plasmatic concentrations of feedlot young cattle from different genetic groups. C. L. Martins¹, M. D. B. Arrigoni¹, A. C. Silveira¹, H. N. de Oliveira¹, R. d. C. Cervieri¹, L. A. L. Chardulo¹, D. D. Millen*¹, R. D. L. Pacheco¹, T. M. Mariani¹, J. P. S. T. Bastos¹, T. C. B. da Silva², S. R. Baldin¹, L. M. N. Sarti¹, and R. S. Barducci¹, ¹FMVZ/UNESP, Botucatu, São Paulo, Brazil, ²Faculdade de Zootecnia/UNESP, Dracena, São Paulo, Brazil.
- W266 Influence of chromium methionine addition during last days in feedlot on performance and carcass characteristics of finishing bulls. R. Barajas*¹, B. J. Cervantes^{2,1}, J. A. Romo¹, P. J. Rojas³, and E. A. Velazquez¹, ¹FMVZ-Universidad Autonoma de Sinaloa, Culiacán, Sinaloa, Mexico, ²Ganadera Los Migueles SA de CV, Culiacán, Sinaloa, Mexico, ³Tecnología de Máxima Producción, S.A. de C.V., Culiacán, Sinaloa, Mexico.
- W267 Influence of chromium-methionine supplementation level during last 32 days on feedlot performance, carcass characteristics, and blood cortisol of finishing bulls. V. Monterrosa^{1,2}, R. Barajas*³, J. A. Romo³, and B. J. Cervantes^{3,4}, ¹Técnica Mineral Pecuaria, Guadalajara, Jalisco, Mexico, ²CUCBA-Universidad de Guadalajara, Guadalajara, Jalisco, Mexico, ³FMVZ-Universidad Autonoma de Sinaloa, Culiacan, Sinaloa, Mexico, ⁴Ganadera Los Migueles, S.A. de C.V., Culiacan, Sinaloa, Mexico.
- W268 Effects of essential oils on ruminal environment and performance of feedlot calves. J. I. Geraci¹, A. D. Garciarena¹, D. Colombatto*^{2,3}, D. Bravo⁴, and J. C. Burges¹, ¹EEA Balcarce INTA, Argentina, ²University of Buenos Aires, Argentina, ³CONICET, Argentina, ⁴Pancosma SA, Switzerland.
- W269 Body and ultrasound measurements, muscularity scores, blood physiology and behaviour in growing beef heifers differing in phenotypic residual feed energy intake. M. McGee*¹, M. J. Drennan¹, D. A. Kenny², and B. Earley¹, ¹Teagasc, Grange Beef Research Centre, Dunsany, Co. Meath, Ireland, ²University College Dublin, Belfield, Dublin, Ireland.
- W270 The effect of mineral supplement delivery system on frequency, duration, and timing of use by beef cows grazing topographically rugged native range. N. A. Sproul*, K. C. Olson, J. S. Drouillard, J. R. Jaeger, L. A. Pacheco, J. W. Bolte, M. D. Thomas, and J. J. Higgins, *Kansas State University, Manhattan.*
- W271 Effects of the dose of capsicum extract on intake, water consumption and rumen fermentation of beef heifers fed a high-concentrate diet. M. Rodriguez-Prado¹, S. Calsamiglia*¹, A. Ferret¹, J. Zwieten¹, L. Gonzalez¹, and D. Bravo², ¹Universitat Autonoma de Barcelona, Spain, ²Pancosma, Switzerland.
- W272 Blood metabolic profile of feedlot cattle supplemented with monensin or polyclonal antibodies preparations against lactate-producing rumen bacteria during diet step-up. D. D. Millen*^{1,3}, R. D. L. Pacheco¹, M. D. B. Arrigoni¹, A. DiCostanzo², C. T. Marino¹, N. DiLorenzo², S. A. Matsuhara¹, M. Parrili¹, M. V. Fossa¹, L. M. N. Sarti¹, S. L. Beier¹, H. N. de Oliveira¹, C. L. Martins¹, T. M. Mariani¹, J. P. S. T. Bastos¹, ¹FMVZ/UNESP, Botucatu, São Paulo, Brazil, ²University of Minnesota, Saint Paul, ³Apoio FAPESP.
- W273 Intake fluctuations of feedlot cattle supplemented with monensin or polyclonal antibodies preparations against lactate-producing rumen bacteria during diet step-up. D. D. Millen*^{1,3}, R. D. L. Pacheco¹, M. D. B. Arrigoni¹, A. DiCostanzo², N. DiLorenzo², C. T. Marino¹, S. A. Matsuhara¹, M. Parrili¹, L. M. N. Sarti¹, M. V. Fossa¹, H. N. de Oliveira¹, S. L. Beier¹, C. L. Martins¹, T. M. Mariani¹, J. P. S. T. Bastos¹, ¹FMVZ/UNESP, Botucatu, São Paulo, Brazil, ²University of Minnesota, Saint Paul, ³Apoio FAPESP.
- W274 Effects of supplemental cobalt on site and extent of digestion in beef heifers consuming chopped grass hay. E. J. Scholljegerdes*¹ and W. J. Hill², ¹USDA-ARS, Northern Great Plains Research Laboratory, Mandan, ND, ²Ralco Nutrition Inc., Marshall, MN.
- W275 Effect of added dietary tannins on animal performance, carcass traits, and methane producing activity in finishing calves. W. K. Krueger*^{1,2}, H. G. Bañuelos¹, W. E. Pinchak³, B. R. Min³, R. C. Anderson*^{4,2}, G. E. Carstens^{1,2}, R. R. Gomez¹, and N. A. Krueger⁴, ¹Texas A&M University, College Station, ²Intercollegiate Faculty of Nutrition, TAMU, College Station, TX, ³Texas AgriLife Research, Vernon, TX, ⁴USDA-ARS-Food and Feed Safety Research Unit, College Station, TX.
- W276 Evaluation of feed efficiency and feeding behavior traits in Angus and Red Angus growing bulls. Z. D. Paddock*¹, G. E. Carstens¹, P. A. Lancaster¹, L. R. McDonald², and S. Williams², ¹Texas A&M University, College Station, ²Midland Bull Test, Columbus, MT.
- W277 Effects of fish oil and sunflower oil supplementation on trans-10, cis-12 CLA and cis-9, trans-11 CLA contents of ruminal bacteria from beef cattle. D. P. Bu, S. L. Liu, J. Q. Wang*, S. Liang, L. Liu, H. Y. Wei, and L. Y. Zhou, *State Key Laboratory of Animal Nutrition, Institute of Animal Science, Chinese Academy of Agricultural Sciences, Beijing, P.R. China.*
- W278 Different levels and combinations of fish oil and sunflower oil do not alter fiber digestion in China Nooxi steers. S. Liang, J. Q. Wang*, D. P. Bu, S. J. Liu, L. Liu, H. Y. Wei, L. Y. Zhou, and K.L. Liu, *State Key Laboratory of Animal Nutrition, Institute of Animal Science, Chinese Academy of Agricultural Sciences, Beijing, China.*
- W279 Different combinations of fish oil and sunflower oil alter fatty acids profile in rumen fluid and duodenal fatty acid flows in China Nooxi steers. S. Liang, J. Q. Wang*, D. P. Bu, S. J. Liu, L. Liu, K. L. Liu, H. Y. Wei, and L. Y. Zhou, *State Key Laboratory of Animal Nutrition, Institute of Animal Science, Chinese Academy of Agricultural Sciences, Beijing, China.*
- W280 Changes in rumen bacterial flora in beef cattle fed fish oil. Y. X. He, J. Q. Wang*, D. P. Bu, P. Yu, S. J. Liu, H. Y. Wei, L. Y. Zhou, and K. L. Liu, *State Key Laboratory of Animal Nutrition, Institute of Animal Science, Chinese Academy of Agricultural Sciences, Beijing, China.*

Swine Species Exhibit Hall CDE

- W281 Effect of wheat bran and zinc oxide on the microbiota of weanling pigs. F. Molist*, A. Gómez de Segura, J. Gasa, R. G. Hermes, and J. F. Pérez, *Universitat Autònoma de Barcelona, Bellaterra, Barcelona, Spain.*
- W282 Effects of wheat bran level and particle size on the intestinal microbiota composition and activity of early weaned piglets. F. Molist*, A. Gómez de Segura, J. Gasa, R. G. Hermes, and J. F. Pérez, *Universitat Autònoma de Barcelona, Bellaterra, Barcelona, Spain.*
- W283 Effect of supplemental mixed *Saccharomyces cerevisiae* and *Lactobacillus acidophilus* 30SC on the growth performance of weaned pigs. J. P. Kim^{*1}, K. H. Kim¹, K. G. Kim², S. J. Oh¹, S. H. Kim², and K. Y. Whang², ¹Chonnam National University, Gwangju, Korea, ²Korea University, Seoul, Korea.
- W284 Effect of supplemental mixed *Saccharomyces cerevisiae* and *Lactobacillus acidophilus* 30SC on the energy, nitrogen, Ca, and P digestibility of weaned pigs. K. H. Kim^{*1}, J. P. Kim¹, J. G. Kim², S. J. Oh¹, S. H. Kim², and K. Y. Whang², ¹Chonnam National University, Gwangju, Korea, ²Korea University, Seoul, Korea.
- W285 Effect of supplemental mixed *Saccharomyces cerevisiae* and *Lactobacillus acidophilus* 30SC on the immunoglobulin G production of weaned pigs. S. J. Oh^{*1}, J. P. Kim¹, K. H. Kim¹, J. G. Kim², S. H. Kim², and K. Y. Whang², ¹Chonnam National University, Gwangju, Korea, ²Korea University, Seoul, Korea.
- W286 The effects of seaweed extract inclusion on gut microflora and immune status of the weaned pig. P. Reilly¹, T. Sweeney¹, K. M. Pierce^{*1}, J. J. Callan¹, A. Julka², and J. V. O'Doherty¹, ¹University College Dublin, Ireland, ²Bioatlantis Ltd, Ireland.
- W287 Yam on fermentation characteristics and immune function in pigs. M. J. Bo, Y. L. Yin*, X. F. Kong, Y. Z. Zhang, G. Y. Wu, and B. E. Tan, *Laboratory of Animal Nutrition and Human Health and Key Laboratory of Agro-ecology, Changsha, Hunan, P. R. China.*
- W288 Effect of Chinese herbal ultra-fine powder as a dietary additive on digestion and absorption of amino acids in early-weaned piglets. X. F. Kong¹, Q. H. He¹, F. G. Yin¹, Y. L. Yin^{*1}, G. Y. Wu^{1,2}, B. E. Tan¹, and R. L. Huang¹, ¹Laboratory of Animal Nutrition and Human Health and Key Laboratory of Agro-ecology, Changsha, Hunan, P. R. China, ²Texas A&M University, College Station.
- W289 Effects of dietary supplemental Chinese herbal formula on immune responses in weaned piglets. X. F. Kong, B. E. Tan, Y. L. Yin*, H. J. Liu, F. G. Yin, and M. J. Bo, *Laboratory of Animal Nutrition and Human Health and Key Laboratory of Agro-ecology, Changsha, Hunan, P. R. China.*
- W290 Level of management affects finisher growth and pig composition. J. S. Fix* and M. T. See, *North Carolina State University, Raleigh.*
- W291 *In vivo* antioxidant activity of peptide fractions from porcine plasma albumin in rats. J. Z. Wang^{*1,2}, H. Zhang¹, S. S. Zeng², and F. Z. Ren¹, ¹College of Food Science & Nutritional Engineering, China Agricultural University, Beijing, China, ²American Institute for Goat Research, Langston University, Langston, OK.
- W292 Influence of weaning age and number of weaning per week on productive performance of sows and piglets. N. Simal¹, A. Fuentetaja², M. Nieto², M. P. Serrano¹, and G. G. Mateos^{*1}, ¹Universidad Politécnica de Madrid, Spain, ²Copese, Segovia, Spain.
- W293 Sow parity and number born alive influence piglet birth weight along with subsequent growth, composition, mortality and endpoint value. J. S. Fix* and M. T. See, *North Carolina State University, Raleigh.*
- W294 Influence of a live yeast on the faecal microflora of gestating and lactating sows. N. Walker^{*1}, M. Cintora¹, H. Durand², and Y. le Treut², ¹Lallemand Animal Nutrition, Montreal, Canada, ²Lallemand Animal Nutrition, Toulouse, France.
- W295 Effect of lactation length of on herd-level performance of breeding sows. S. S. Anil*, L. Anil, and J. Deen, *University of Minnesota, St. Paul.*
- W296 Association between claw lesions and farrowing performance of sows. S. S. Anil*, L. Anil, and J. Deen, *University of Minnesota, St. Paul.*
- W297 Evaluation of welfare of gestating sows in conventional gestation stalls and in gestation stalls with widths defined by the sow height. L. Anil*, S. S. Anil, and J. Deen, *University of Minnesota, St. Paul.*
- W298 The relationship between distance of pig farms to roads and its seroprevalence to Aujeszky's disease. G. Rocha-Chavez¹, O. D. Montañez-Valadez¹, R. Santibañez-Escobar¹, J. G. Michel-Parra¹, and M. A. Pinto-Jacobo^{*2,3}, ¹CUSUR, Univ de Guadalajara, Cd Guzman, Jalisco, Mexico, ²Private practice, Zapotiltic, Jalisco, Mexico, ³URPJ, El Salto, Jalisco Mexico.
- W299 Expression of Dicer and Ago-2 in porcine ovarian tissue. H. M. Barton* and S. L. Pratt, *Clemson University, Clemson, SC.*
- W300 Association of gene markers affecting the principal components of skeletal design and feet and leg soundness in pigs. B. Fan, S. Onteru, B. Mote, T. Serenius, M. Nikkilä, K. J. Stalder, and M. F. Rothschild*, *Iowa State University, Ames.*

- W301 Effects of the sex and the halothane genotype on carcass and meat quality characteristics in Duroc and Landrace crossbred pigs. L. L. Lo*¹, C. C. Tsai¹, M. C. Huang², R. S. Lin³, and T. H. Huang⁴, ¹Chinese Culture University, Taipei, Taiwan, ROC, ²National Chung-Hsing University, TaiChung, Taiwan, ROC, ³National ILan University, ILan, Taiwan, ROC, ⁴Taiwan Farm Industry Co. Ltd., Pingtung, Taiwan, ROC.
- W302 Identification and quantification of miRNA expression in porcine sperm cells. E. Curry* and S. L. Pratt, *Clemson University, Clemson, SC.*

SYMPOSIA AND ORAL SESSIONS

ADSA Foundation Scholar Lecture

Dairy Foods

Chair: Lloyd Metzger, South Dakota State University

Sponsor: ADSA Foundation

121

- 9:30 AM Introduction
- 9:35 AM ADSA Foundation Scholar Lecture – Dairy Foods. The use of polysaccharides in dairy products: Fine tuning structure. Milena Corredig*, *University of Guelph, Guelph, ON, Canada.*
- 10:20 AM Discussion

Animal Behavior and Well-Being

Swine

Chair: Ted Friend, Texas A & M University

206

- 9:30 AM Introduction of Centennial speaker
- 9:35 AM 240 **ASAS Centennial Presentation:** Animal behavior and well-being: What does the future hold? A. K. Johnson*, *Department of Animal Science, Iowa State University, Ames.*
- 10:05 AM Break
- 10:15 AM 241 Effects of facility design on the stress response of market weight pigs during loading and unloading. A. Johnson*¹, L. Sadler¹, M. Faga², C. Feuerbach², H. Hill², R. Bailey³, and M. Ritter⁴, ¹Department of Animal Science, Iowa State University, Ames, ²Iowa Select Farms, Iowa Falls, IA, ³Swift and Co., Marshalltown, IA, ⁴Elanco Animal Health, Greenfield, IN.
- 10:30 AM 242 Effect of trailer design on the behavior of market weight pigs during unloading and lairage. S. Torrey*¹, H. Gonyou^{2,3}, J. A. Correa⁴, R. Bergeron⁵, T. Widowski⁵, N. Lewis⁶, T. Crowe², C. Dewey⁵, and L. Faucitano¹, ¹Agriculture and Agri-Food Canada, Sherbrooke, QC, Canada, ²University of Saskatchewan, Saskatoon, SK, Canada, ³Prairie Swine Centre, Saskatoon, SK, Canada, ⁴Université Laval, Quebec City, QC, Canada, ⁵University of Guelph, Guelph, ON, Canada, ⁶University of Manitoba, Winnipeg, MB, Canada.
- 10:45 AM 243 Space requirements of weaned pigs during transport in summer. M. A. Sutherland*^{1,2}, P. J. Bryer^{1,2}, B. L. Davis^{1,2}, and J. J. McGlone^{1,2}, ¹Pork Industry Institute, Lubbock, TX, ²Texas Tech University, Lubbock.
- 11:00 AM 244 The effect of 30-hour transport at two space allowances on physiological measures of stress in breeding gilts. P. J. Bryer*, M. A. Sutherland, B. L. Davis, J. Smith, and J. J. McGlone, *Pork Industry Institute, Dept. Animal and Food Science, Texas Tech University, Lubbock.*
- 11:15 AM 245 Responses to weaning and transport in pigs: Influence of sex and weaning weight. T. A. Cooper*, M. P. Roberts, C. J. Kojima, and H. G. Kattesh, *University of Tennessee, Knoxville.*

Animal Health IV

Chair: Isis Mullarkey, Virginia Tech

Sponsor: European Association of Animal Production

Sagamore Ballroom 1

- 9:30 AM 246 Metabolic disorders and immune response in farm animals. N. Lacetera*, U. Bernabucci, B. Ronchi, and A. Nardone, *Dipartimento di Produzioni Animali, Viterbo, Italy.*

- 10:30 AM 247 Administration of a *Staphylococcus aureus* bacterin to dairy heifers reduces new infection rate and somatic cell counts at time of calving. S. C. Nickerson*¹, E. Hovigh², C. Peterson³, S. Brannock³, E. Schaffer³, and P. W. Widel⁴, ¹University of Georgia, Athens, ²Pennsylvania State University, College Park, ³James River Correctional Facility, Goochland, VA, ⁴Boehringer Ingelheim Vetmedica Inc., St. Joseph, MO.
- 10:45 AM 248 Serum non-esterified fatty acid and beta-hydroxybutyrate in the transition period and their associations with disease in dairy cows. M. E. Carson*¹, S. J. LeBlanc¹, S. M. Godden², M. B. Capel³, M. W. Overton⁴, J. Santos⁵, K. E. Leslie¹, and T. F. Duffield¹, ¹University of Guelph, Ontario, Canada, ²University of Minnesota, St. Paul, ³Perry Veterinary Clinic, Perry, NY, ⁴University of Georgia, Athens, ⁵University of California Davis, Tulare.
- 11:00 AM 249 Intramammary pathogens from 3755 dairy goats and sheep and farm characteristics from New York State. D. J. Wilson*¹, R. N. Gonzalez², P. M. Sears³, L. H. Southwick⁴, H. F. Schulte², and G. J. Bennett², ¹Utah State University, Logan, ²Cornell University, Ithaca, NY, ³Michigan State University, East Lansing, ⁴Lee H. Southwick Consulting, Virgil, NY.
- 11:15 AM 250 Ability of an immunomodulatory feed additive to reduce infection of the murine mammary gland with *Streptococcus uberis*, *Escherichia coli* and *Staphylococcus aureus*. A. Rowson*¹, Y. Q. Wang¹, E. Aalseth², N. E. Forsberg¹, and S. B. Puntunen¹, ¹OmniGen Research, Corvallis, OR, ²Aalseth Consulting, Lake Stevens, WA.
- 11:30 AM 251 Evaluation of selective, chromogenic media in an on-farm culture kit. D. W. Rensburg*¹, B. I. Smith, and M. A. Kristula, *University of Pennsylvania, Kennett Square.*
- 11:45 AM 252 Evaluation of a novel chlorine dioxide teat dip on teat end and teat skin health. L. L. Timms*, *Iowa State University, Ames.*
- 12:00 PM 253 Sodium chlorite lactic acid teat dip contaminated with *Serratia liquifaciens*. D. J. Wilson*, J. D. Trujillo, R. T. Skirpstunas, and K. B. Cavender, *Utah State University, Logan.*
- 12:15 PM 254 Teat end and skin conditioning evaluation of two experimental heptanoic acid teat dips during winter. L. L. Timms*¹ and J. Morelli², ¹Iowa State University, Ames, ²Ecolab, Inc., St. Paul, MN.

SYMPOSIUM

Bioethics

How Do We Integrate Bioethics into Our Food Animal System?

Chair: Debbie Cherney, Cornell University

101–102

- 9:30 AM Introduction
- 9:35 AM 255 **ASAS Centennial Presentation:** History and future perspectives of bioethics in food animal agriculture. W. R. Stricklin*, *University of Maryland, College Park.*
- 10:05 AM 256 Bioethics from 1995–2008: How far have we come? R. Anthony*, *University of Alaska, Anchorage.*
- 10:30 AM 257 Bridging the DVM and PhD gap. P. Ruegg*, *University of Wisconsin, Madison.*
- 10:55 AM Break
- 11:10 AM 258 How to talk truthfully with the public regarding bioethical and animal welfare issues. W. Jamison*, *University of Florida, Gainesville.*
- 11:35 AM 259 Roles of surveys and foundation reports in policy decisions. F. B. Norwood* and J. L. Lusk, *Oklahoma State University, Stillwater.*
- 12:00 PM Discussion

SYMPOSIUM
Breeding and Genetics
Genome-Wide Selection

Chairs: Filippo Miglior, Agriculture and Agri-Food Canada, and Janice Rumph, Michigan State University
Sponsors: Igenity and Newsham Genetics
500 Ballroom

- 9:30 AM Introduction. F. Miglior, *Agriculture and Agri-Food Canada, Guelph, ON, Canada.*
- 9:35 AM 260 Genome-wide selection: Potential and pitfalls. B. Hayes* and M. Goddard, *University of Melbourne, Attwood, Victoria, Australia.*
- 10:15 AM 261 Reliability of genomic predictions for North American dairy bulls. P. M. VanRaden*¹, C. P. Van Tassell^{1,2}, G. R. Wiggans¹, T. S. Sonstegard², R. D. Schnabel³, and F. Schenkel⁴, ¹*USDA Animal Improvement Programs Laboratory, Beltsville, MD*, ²*Bovine Functional Genomics Laboratory, Beltsville, MD*, ³*University of Missouri, Columbia*, ⁴*University of Guelph, Guelph, ON Canada.*
- 10:55 AM 262 Data optimization techniques for large phenotypic and molecular data sets. R. Rekaya*, *University of Georgia, Athens.*
- 11:35 AM 263 The next steps in genomic selection: An industry perspective. J. P. Chesnais*¹, F. Schenkel², and N. Caron¹, ¹*Semex Alliance, Guelph, ON, Canada*, ²*University of Guelph, Guelph, ON, Canada.*
- 12:15 PM Panel Discussion. J. Rumph¹ and F. Miglior², ¹*Michigan State University, Lake City*, ²*Agriculture and Agri-Food Canada, Guelph, ON, Canada.*

SYMPOSIUM
Food Safety
Assuring Food Safety in a Globalized Market
Chair: Pamela Ruegg, University of Wisconsin
Sponsor: Elanco
204

- 9:30 AM 264 Quality and safety concerns of outsourced foods. M. W. Griffiths*, *University of Guelph, Guelph, ON, Canada.*
- 10:05 AM 265 Melamine contaminated animal feed recalls. M. G. Alewynse*, *U.S. Food and Drug Administration.*
- 10:35 AM 266 FDA's food protection plan and import safety plan. S. A. Benz*, *Center for Veterinary Medicine, Food and Drug Administration, Rockville, MD.*
- 11:05 AM Break
- 11:20 AM 267 The global threat of foreign animal diseases and their role in food safety. T. McKenna*¹ and A. Torres², ¹*Wisconsin Veterinary Diagnostic Laboratory, Madison, WI*, ²*Cornell University, Ithaca, NY.*
- 11:50 AM 268 BSE: Risk communication lessons learned in North America. R. R. Ulmer*¹, W. D. Hueston², and A. Millner¹, ¹*University of Arkansas, Little Rock*, ²*University of Minnesota, St. Paul.*

SYMPOSIUM
Forages and Pastures
Forage-Based Systems for Beef and Dairy Cattle Production: Regional Challenges and Opportunities
Chair: Paul Beck, University of Arkansas
Sponsor: Mycogen
103

- 9:30 AM 269 Northeast opportunities and challenges for forage-based beef and dairy production. K. J. Soder*, *USDA-ARS, Pasture Systems & Watershed Mgmt. Research Unit, University Park, PA.*
- 10:00 AM 270 Forage-based systems for the Upper Midwest. W. K. Coblenz*, *US Dairy Forage Research Center, Marshfield, WI.*
- 10:30 AM 271 Opportunities and obstacles for forage-based dairy and beef production in the Southeastern US. J. Andrae*, *Clemson University, Clemson, SC.*

- 11:00 AM 272 Forage-based systems for beef and dairy cattle production: Challenges and opportunities in the South Central region. W. A. Phillips*¹, G. W. Horn², and B. K. Northup¹, ¹USDA-ARS Grazinglands Research Laboratory, El Reno, OK, ²Oklahoma Agricultural Experiment Station, Stillwater, OK.
- 11:30 AM 273 Forage-based systems for beef production: Western regional challenges and opportunities. K. C. Olson*¹ and B. L. Waldron², ¹South Dakota State University, Rapid City, ²USDA-ARS Forage and Range Research Laboratory, Logan, UT.

**Growth and Development
Historical Perspective and Future Direction
Chairs: Michael Azain, University of Georgia, and Jud Heinrichs, Pennsylvania State University
Sagamore Ballroom 5**

- 9:30 AM Introduction. Michael Azain.
- 9:40 AM 274 **ASAS Centennial Presentation:** The history of growth biology research – A reflection on the episodic nature of science. T. Etherton*, Penn State University, University Park.
- 10:20 AM 275 **ASAS Centennial Presentation:** Future needs and directions in animal growth and development research. M. A. Mirando*, Cooperative State Research, Education, and Extension Service, United States Department of Agriculture, Washington, DC.
- 11:00 AM 276 The role of microRNA on murine mammary epithelial cell and mammary gland. Q. Z. Li* and C. M. Wang, Northeast Agricultural University, Harbin, Heilongjiang, China.
- 11:15 AM 277 Effect of AMP-activated protein kinase (AMPK) and insulin-like growth factor-1 (IGF-1) on expression of muscle-specific ubiquitin ligases in C₂C₁₂ myotubes. J. F. Tong*, K. R. Underwood, X. Yan, M. J. Zhu, and M. Du, University of Wyoming, Laramie.
- 11:30 AM 278 Metabolic gene networks in longissimus muscle of early-weaned Angus and Angus × Simmental steers fed high-grain or high-byproduct diets during the growing phase. D. E. Graunard*, P. Piantoni, M. Bionaz, L. L. Berger, D. B. Faulkner, and J. J. Loor, University of Illinois, Urbana.
- 11:45 AM 279 Enhanced skeletal muscle protein synthesis rates in pigs treated with somatotropin requires fed amino acids levels. F. A. Wilson*, A. Suryawan, R. A. Orellana, H. V. Nguyen, A. S. Jeyapalan, M. C. Gazzaneo, and T. A. Davis, Baylor College of Medicine, Houston, TX.
- 12:00 PM 280 Changes in the transcriptome of adipose tissue of the dairy heifer during late pregnancy and lactation as measured by gene array analysis: global changes and cell control. J. Sumner*, C. Schachtschneider, and J. McNamara, Washington State University, Pullman.
- 12:15 PM 281 Changes in the transcriptome of adipose tissue of the dairy heifer during late pregnancy and lactation as measured by gene array analysis: changes in specific metabolic control genes. J. Sumner*, C. Schachtschneider, J. Vierck, and J. McNamara, Washington State University, Pullman.

**Horse Species I
Chair: Jason Turner, New Mexico State University
104**

- 9:30 AM 282 **ASAS Centennial Presentation:** Historical review and future outlook of equine reproductive technology. D. Sharp*, University of Florida, Gainesville.
- 10:30 AM 283 Pituitary responsiveness to continuously-administered native GnRH at the winter solstice in anovulatory mares and mares with residual ovarian activity. I. C. Velez*^{1,2}, M. Amstalden^{1,2}, J. D. Pack^{1,2}, and G. L. Williams^{1,2}, ¹Texas AgriLife Research, Beeville, TX, ²Texas A&M University, College Station.
- 10:45 AM 284 Patterns of pituitary venous LH release in the luteal and follicular phase mare: Effects of continuous treatment with native GnRH. I. C. Velez*^{1,2}, M. Amstalden^{1,2}, J. D. Pack^{1,2}, and G. L. Williams^{1,2}, ¹Texas AgriLife Research, Beeville, TX, ²Texas A&M University, College Station.
- 11:00 AM 285 Effect of centrifugation technique on post storage characteristics of stallion spermatozoa. M. M. Dean and G. W. Webb*, Missouri State University, Springfield.
- 11:15 AM Break

- 11:30 AM 286 Effect of selenium supplementation and dietary energy manipulation on mares and their foals: Selenium concentrations and glutathione peroxidase activity. B. J. Karren*¹, J. F. Thorson², C. A. Cavinder¹, C. J. Hammer², and J. A. Coverdale¹, ¹Texas A&M University, College Station, ²North Dakota State University, Fargo.
- 11:45 AM 287 Effect of selenium supplementation and dietary energy manipulation on mares and their foals: Equine colostrum quality and passive transfer of IgG. J. F. Thorson*¹, B. J. Karren², M. L. Bauer¹, C. A. Cavinder², J. A. Coverdale², and C. J. Hammer¹, ¹North Dakota State University, Fargo, ²Texas A&M University, College Station.
- 12:00 PM 288 Differential mRNA expression of amino acid transporters in the equine small and large intestine. A. D. Woodward*, S. J. Holcombe, C. Colvin, J. Liesman, and N. L. Trotter, *Michigan State University, East Lansing.*
- 12:15 PM 289 Differential gene expression in two segments of the equine intestinal tract using a bovine long oligo microarray. A. D. Woodward*, S. S. Sipkovsky, S. J. Holcombe, J. Liesman, and N. L. Trotter, *Michigan State University, East Lansing.*

Meat Science and Muscle Biology
Measuring and Manipulating Pork Quality
Chair: Kirk Braden, Angelo State University
Sagamore Ballroom 7

- 9:30 AM 290 Oxidation results in formation of an intramolecular disulfide bond in μ -calpain. R. Lametsch², E. Huff-Lonergan¹, and S. M. Lonergan*¹, ¹Iowa State University, Ames, ²University of Copenhagen, Copenhagen, Denmark.
- 9:45 AM 291 Developmental changes in tissue skatole levels and hepatic activity of cytochrome P4502E1 and P4502A6 in local and exotic pigs. C. Y. Li*, C. Wu, T. Z. Shan, J. X. Liu, Y. Z. Wang, and J. K. Wang, *Ministry of Education Key Laboratory of Molecular Animal Nutrition, Zhejiang University, Hangzhou, P. R. China.*
- 10:00 AM 292 Objective and sensory measures of meat quality and fatty acid profile of *longissimus* intramuscular lipid from pigs fed crude glycerol. P. Lammers*¹, B. Kerr², T. Weber², K. Bregendahl¹, S. Lonergan¹, K. Prusa¹, D. Ahn¹, W. Stoffegen³, W. Dozier III⁴, and M. Honeyman¹, ¹Iowa State University, Ames, ²Swine Odor and Manure Management Research Unit, USDA-ARS, Ames, IA, ³Bacterial Diseases of Livestock Research Unit, USDA-ARS, Ames, IA, ⁴Poultry Research Unit, USDA-ARS, Mississippi State, Mississippi.
- 10:15 AM 293 Correlation of pork texture characteristics determined using different instrumental texture analysis methods. M. J. Anderson*, R. M. Smith, E. Huff-Lonergan, and S. M. Lonergan, *Iowa State University, Ames.*
- 10:30 AM 294 Effect of different dietary levels of natural-source vitamin E in grow-finish pigs on pork quality and shelf life. D. D. Boler*¹, S. R. Gabriel¹, H. Yang², R. Balsbaugh², D. C. Mahan³, M. S. Brewer¹, F. K. McKeith¹, and J. Killefer¹, ¹University of Illinois, Urbana, ²ADM Alliance Nutrition Inc., Quincy, IL, ³The Ohio State University, Columbus.
- 10:45 AM 295 Comparison of dose and durations of ractopamine on late finishing pig carcass characteristics and meat quality. L. W. Kutzler*¹, S. F. Holmer¹, D. D. Boler¹, S. N. Carr², M. J. Ritter², C. W. Parks², F. K. McKeith¹, and J. Killefer¹, ¹University of Illinois, Urbana, ²Elanco Animal Health, Greenfield, IN.
- 11:00 AM 296 Comparison of growth performance, carcass characteristics, and meat quality of barrows, immunocastrated pigs and entire males. C. Pauly² and G. Bee*¹, ¹Agroscope Liebefeld-Posieux Research Station ALP, Posieux, Switzerland, ²Swiss College of Agriculture, Zollikofen, Switzerland.
- 11:15 AM 297 Effect of gender and slaughter weight on meat quality and weight loss of hams during ripening in Iberian pigs reared under intensive production systems. M. P. Serrano¹, D. G. Valencia¹, R. Lázaro¹, D. Menoyo¹, A. Fuentetaja², and G. G. Mateos*¹, ¹Universidad Politécnica de Madrid, Spain, ²Copese, Segovia, Spain.

Nonruminant Nutrition
Past and Future of Nonruminant Nutrition
Chairs: Wilson G. Pond, Cornell University, and Nathan Auspurger, JBS United
105–106

- 9:30 AM Introduction. W. G. Pond.
- 9:40 AM 298 **ASAS Centennial Presentation:** Landmark studies in swine nutrition during the past century. G. L. Cromwell*, *University of Kentucky, Lexington.*
- 10:20 AM Discussion

10:35 AM 299 **ASAS Centennial Presentation:** Nonruminant nutrition – A proud past but uncertain future. R. A. Easter*, *University of Illinois, Urbana.*

11:15 AM Discussion

SYMPOSIUM
Physiology and Endocrinology
Emerging Concepts on Dietary Components that Influence the Physiology
and Endocrinology of Domestic Farm Animals
Chair: Mark Estienne, Virginia Tech
Sponsor: Monsanto Company
Sagamore Ballroom 4

9:30 AM 300 Reproductive consequences of nutritionally induced changes in the pH of the bovine reproductive tract. G. A. Perry*, *South Dakota State University, Brookings.*

10:15 AM 301 Performance, metabolism and immunity in domestic animals fed diets contaminated with *Fusarium* mycotoxins. T. K. Smith*, *University of Guelph, Guelph, ON, Canada.*

11:00 AM 302 Effectiveness of supplemental antioxidants for enhancing reproductive function in cattle. P. J. Hansen*, *University of Florida, Gainesville.*

11:45 AM 303 Phytase: Not just for environmental protection–Novel roles in system physiology. X. G. Lei*¹ and J. M. Porres², ¹*Cornell University, Ithaca, NY,* ²*University of Granada, Granada, Spain.*

Production, Management and the Environment
Nutrient Management and the Environment
Chair: Walter Owsley, Auburn University
Sagamore Ballroom 2

9:30 AM 304 Development of methane conversion factors for US cattle using mechanistic models. E. Kebreab*¹, K. A. Johnson², S. L. Archibeque³, D. Pape⁴, and T. Wirth⁵, ¹*University of Manitoba, Winnipeg, Manitoba, Canada,* ²*Washington State University, Pullman,* ³*Colorado State University, Ft. Collins,* ⁴*ICF International, Washington, DC,* ⁵*Environmental Protection Agency, Washington, DC.*

9:45 AM 305 Characteristics and use of separated manure solids following anaerobic digestion for dairy freestall bedding in three Iowa dairy herds. L. L. Timms*, *Iowa State University, Ames.*

10:00 AM 306 Aerobic composting or anaerobic stockpiling of beef feedlot manure. M. K. Luebke*, G. E. Erickson, T. J. Klopfenstein, and J. R. Benton, *University of Nebraska, Lincoln.*

10:15 AM 307 Effect of dietary protein level and degradability and energy density on ammonia losses from manure in dairy cows. M. Agle¹, A. N. Hristov*¹, S. Zaman¹, C. Schneider¹, P. Ndegwa², and V. K. Vaddella², ¹*University of Idaho, Moscow,* ²*Washington State University, Pullman.*

10:30 AM 308 Simulating effects of grass management on methane emission in lactating cows. A. Bannink*¹, M. C. J. Smits¹, J. A. N. Mills², E. Kebreab³, J. L. Ellis⁴, J. France⁴, and J. Dijkstra⁵, ¹*Animal Sciences Group, Wageningen University Research Centre, Lelystad, the Netherlands,* ²*University of Reading, Reading, United Kingdom,* ³*University of Manitoba, Winnipeg, Canada,* ⁴*University of Guelph, Guelph, Canada,* ⁵*Wageningen University, Wageningen, the Netherlands.*

10:45 AM 309 Application of computer models in evaluating alternatives to reduce excess nutrients on a beef farm. M. J. Baker*¹, D. G. Fox¹, and L. O. Tedeschi², ¹*Cornell University, Ithaca, NY,* ²*Texas A&M University, College Station.*

11:00 AM 310 Challenges in using flux chambers to measure ammonia and VOC flux from simulated feedlot pen surfaces and retention ponds. N. A. Cole*¹, R. W. Todd¹, D. B. Parker², M. B. Rhoades², and E. Caraway², ¹*USDA-ARS-CPRL, Bushland, TX,* ²*West Texas A&M University, Canyon, TX.*

11:15 AM 311 Odorant production and persistence of generic *E. coli* in manure slurries from cattle fed 0, 20, 40, and 60% wet distillers grains with solubles (WDGS). V. H. Varel*¹, J. E. Wells¹, E. D. Berry¹, M. J. Spiels¹, D. N. Miller², C. L. Ferrell¹, S. D. Shackelford¹, and M. Koohmaraie¹, ¹*USDA-ARS, US Meat Animal Research Center, Clay Center, NE,* ²*USDA-ARS, Agroecosystem Management Unit, Lincoln, NE.*

- 11:30 AM 312 Quantification of nutrient excretion and volatile fatty acid production from a swine wean-finish facility. D. M. Sholly*, D. T. Kelly, A. L. Sutton, B. T. Richert, and J. S. Radcliffe, *Purdue University, West Lafayette, IN.*

**Production, Management and the Environment
Young Stock, Environment and Management
Chair: Micheal Brouk, Kansas State University
109–110**

- 9:30 AM 313 Supplements for replacement beef heifers grazing dry summer California foothills annual range. R. D. Sainz*¹, L. F. B. Carvalho^{1,2}, L. R. A. Sodré^{1,3}, G. D. Cruz¹, D. M. Myers¹, J. W. Oltjen¹, and M. Arana⁴, ¹*University of California, Davis*, ²*Federal Rural University of Pernambuco, Recife, PE, Brazil*, ³*University of São Paulo, Pirassununga, SP, Brazil*, ⁴*A. L. Gilbert Company, Oakdale, CA.*
- 9:45 AM 314 Feed intake, gain and feed efficiency of Suffolk ram lambs from a flock emphasizing performance traits. M. E. Benson*², A. B. Culham¹, and G. M. Hill¹, ¹*Michigan State University, East Lansing*, ²*Washington State University, Pullman.*
- 10:00 AM 315 Variation in total mixed rations on farms utilizing feed management software. B. House*, L. Holden, and G. Varga, *Pennsylvania State University, University Park.*
- 10:15 AM 316 Residual feed intake of pre- and post-pubertal heifers of diverse breed types. A. N. Loyd*, A. W. Lewis, R. D. Randel, and C. R. Long, *Texas AgriLife Research, Overton, TX.*
- 10:30 AM 317 Effect of feeding method and temperament on measures of feed efficiency and age at puberty in Brahman bulls. N. D. Ramirez*¹, D. A. Neuendorf³, A. W. Lewis³, S. T. Willard⁴, R. C. Vann⁷, S. Bowers⁴, T. H. Welsh Jr⁵, T. D. A. Forbes⁶, R. L. Stanko^{1,2}, and R. D. Randel³, ¹*Texas A&M University, Kingsville*, ²*Texas AgriLife Research Station, Beeville, TX*, ³*Texas AgriLife Research and Extension Center, Overton, TX*, ⁴*Mississippi State University, Starkville*, ⁵*Texas A&M University, College Station*, ⁶*Texas A&M University Agricultural Research and Extension Center, Uvalde, TX*, ⁷*MAFES-Mississippi State University, Raymond.*
- 10:45 AM 318 Effect of reflective insulation on calves in polyethylene hutches. B. H. Carter*, T. H. Friend, J. H. Matis, J. E. Sawyer, and M. A. Tomaszewski, *Texas A&M University, College Station.*
- 11:00 AM 319 Changes in newborn calf and colostrum management on US dairy operations 1991–2007. J. E. Lombard*, C. A. Koprak, B. A. Wagner, and G. W. Hill, *USDA:APHIS:VS:Centers for Epidemiology and Animal Health, Fort Collins, CO.*
- 11:15 AM 320 Relationship between temperament and chute exit velocity of Senepol calves after weaning. R. W. Godfrey* and R. C. Ketring, *University of the Virgin Islands, Agricultural Experiment Station, Kingshill, VI.*
- 11:30 AM 321 The effect of severe winter weather on net energy required for maintenance by yearling steers. P. T. Grubb*, J. J. Wagner, and T. L. Engle, *Colorado State University, Fort Collins.*
- 11:45 AM 322 Hoop buildings vs. conventional feedlots for steers: Effects on growth and performance. P. Lammers*¹, A. Johnson¹, S. Lonergan¹, J. Harmon¹, R. Baker¹, S. Shouse², W. Busby², and M. Honeyman¹, ¹*Iowa State University, Ames*, ²*Iowa State University Extension, Ames.*

**Ruminant Nutrition
Fats and Fatty Acids
Chair: Paul Kononoff, University of Nebraska
Sagamore Ballroom 3**

- 9:30 AM 323 Effect of supplemental fat source on immunity of periparturient Holstein cows. B. C. do Amaral*, C. R. Staples, O. de F. Zacaroni, S. A. Sennikov, L. Badinga, F. Silvestre, J. D. Arthington, and W. W. Thatcher, *University of Florida, Gainesville.*
- 9:45 AM 324 Effect of supplemental fat source on production, metabolism, and milk composition of periparturient Holstein cows. B. C. do Amaral*, C. R. Staples, O. F. Zacaroni, S. A. Sennikov, L. Badinga, and W. W. Thatcher, *University of Florida, Gainesville.*
- 10:00 AM 325 Effects of supplemental flaxseed or corn on site and extent of digestion in beef heifers grazing summer rangelands in the northern Great Plains. E. J. Scholljegerdes* and S. L. Kronberg, *USDA-ARS, Northern Great Plains Research Laboratory, Mandan, ND.*
- 10:15 AM 326 The influence of single essences on conjugated linoleic acid and vaccenic acid content in cows' milk. S. La Terra*¹, M. Manenti¹, F. La Terra¹, M. Caccamo¹, G. Azzaro¹, S. Carpino¹, and G. Licitra^{1,2}, ¹*CoRFiLaC, Regione Siciliana, Ragusa, Italy*, ²*D.A.C.P.A., Catania University, Catania, Italy.*

- 10:30 AM 327 Dietary coconut oil and animal fat blend decrease lactational performance of Holstein cows fed a high starch diet. M. Hollmann* and D. K. Beede, *Michigan State University, East Lansing.*
- 10:45 AM 328 Effect of supplementation with sunflower oil (SO) or seeds (SS) combined or not with fish oil (FO) on milk production in grazing dairy cows. G. A. Gagliostro^{*1}, D. A. Garciarena¹, F. Luparia¹, A. Ferlay², and Y. Chilliard², ¹*Instituto Nacional de Tecnología Agropecuaria, INTA, Balcarce, Buenos Aires, Argentina,* ²*Institut National de la Recherche Agronomique, Saint Genès Champanelle, France.*
- 11:00 AM 329 Effects of particle size of calcium salts of fatty acids on rates of biohydrogenation and disappearance of essential fatty acids in sacco. E. Block^{*1}, E. Evans², C. J. Sniffen³, and N. Clark⁴, ¹*Church & Dwight Co Inc., Princeton, NJ,* ²*Technical Advisory Services Inc., Bowmanville, ON, Canada,* ³*Fencrest LLC, Holderness, NH,* ⁴*Atlantic Dairy and Forage Institute, Fredericton Junction, NB, Canada.*
- 11:15 AM 330 Calcium status influences the periparturient cow's ability to consume and utilize high levels of supplemental ruminal inert fat and is potentially mediated by insulin. L. M. Norat-Collazo*, A. Lukose, P. G. Smith, L. O. Ely, and M. A. Froetschel, *The University of Georgia, Athens.*
- 11:30 AM 331 Fat from corn germ compared with corn distillers grains and corn oil in dairy cow diets. M. M. Abdelqader*, A. R. Hippen, D. J. Schingoethe, and K. F. Kalscheur, *South Dakota State University, Brookings.*
- 11:45 AM 332 Duodenal flow and intestinal disappearance of fatty acids in lambs fed canola, brown mustard, or camelina seeds. P. L. Price*, V. Nayigihugu, C. M. Murrieta, D. C. Rule, J. M. Krall, and B. W. Hess, *University of Wyoming, Laramie.*
- 12:00 PM 333 Effect of a dietary antioxidant AGRADO® Plus on production performance of early lactation dairy cows. G. R. Bowman^{*1}, M. Vazquez-Anon¹, and J. Nocek², ¹*Novus International Inc., St. Charles, MO,* ²*Spruce Haven Research, Union Springs, NY.*

Ruminant Nutrition
Rumen Fermentation and Microbiology
Chair: John Wagner, Colorado State University
Sagamore Ballroom 6

- 9:30 AM 334 Chemotaxis toward glucose and xylose by mixed ruminal protozoa and dose-responsive insulin recovery from wortmannin inhibition by entodiniomorphid cultures. H. L. Diaz^{*1}, J. L. Firkins¹, M. A. Lyons¹, and J. R. Knapp², ¹*The Ohio State University, Columbus,* ²*Fox Hollow Consulting, LLC, Columbus, OH.*
- 9:45 AM 335 Influence of disodium fumarate on ruminal fermentation and microbial growth in sheep fed high-forage diets. Y. W. Zhou*, J. X. Liu, and L. Zhou, *Zhejiang University, Hangzhou, P. R. China.*
- 10:00 AM 336 Extract from *Larrea tridentata* reduces growth of rumen bacteria. J. Browne-Silva, S. L. Lodge-Ivey*, J. Petersen, R. Reyna-Islas, and M. B. Horvath, *New Mexico State University, Las Cruces.*
- 10:15 AM 337 Effects of a combination of feed additives on methane production, diet digestibility and animal performance in lactating dairy cows. S. M. van Zijderveld^{*1,2}, B. C. J. Fonken^{1,2}, J. R. Newbold³, W. B. Fokkink³, J. Dijkstra², W. J. J. Gerrits², and H. B. Perdok¹, ¹*Provimi B.V., Rotterdam, the Netherlands,* ²*Animal Nutrition Group, Wageningen University, Wageningen, the Netherlands,* ³*Provimi Research and Innovation Centre, Brussels, Belgium.*
- 10:30 AM 338 Ruminal parameters of cattle drenched with a placebo or live cultures of *Megasphaera elsdenii* strain CH4. M. R. McDaniel^{*1}, J. J. Higgins¹, J. M. Heidenreich¹, M. K. Shelor¹, G. L. Parsons¹, P. H. Henning², and J. S. Drouillard¹, ¹*Kansas State University, Manhattan,* ²*KK Animal Nutrition, Centurion, South Africa.*
- 10:45 AM 339 Quantitative detection of bacterial genomes following intruminal dosing of cattle with *Megasphaera elsdenii* strain CH4. M. R. McDaniel^{*1}, J. J. Higgins¹, J. M. Heidenreich¹, M. K. Shelor¹, G. L. Parsons¹, P. H. Henning², and J. S. Drouillard¹, ¹*Kansas State University, Manhattan,* ²*KK Animal Nutrition, Centurion, South Africa.*
- 11:00 AM 340 Bacterial population shifts in the rumen of lactating dairy cows within and across feeding cycles. D. G. Welkie¹, D. M. Stevenson², and P. J. Weimer^{*1,2}, ¹*University of Wisconsin, Madison,* ²*USDA-ARS, Madison, WI.*
- 11:15 AM 341 Effect of lauric acid and coconut oil on ruminal fermentation, digestion, ammonia losses from manure, and milk fatty acid composition in dairy cows. A. N. Hristov^{*1}, M. Vander Pol¹, M. Agle¹, S. Zaman¹, C. Schneider¹, P. Ndegwa², V. K. Vaddella², K. Shingfield³, and K. Johnson², ¹*University of Idaho, Moscow,* ²*Washington State University, Pullman,* ³*MTT Agrifood Research Finland, Jokioinen.*
- 11:30 AM 342 Effect of esterified linolenic acid addition on methanogenesis, fermentation and microbes in the rumen of sheep fed diets with different forage to concentrate ratios. C. M. Zhang*, J. X. Liu, Z. P. Yuan, X. W. Yi, W. T. Li, and Y. Q. Guo, *Zhejiang University, Hangzhou, P. R. China.*

- 11:45 AM 343 Summary of the effect on ruminal fermentation of Protein Edge[®] supplementation in continuous culture experiments. C. S. Mooney*, H. M. Dann, C. S. Ballard, K. W. Cotanch, and R. J. Grant, *William H. Miner Agricultural Research Institute, Chazy, NY*.
- 12:00 PM 344 Effect of controlled *in vitro* pH on fermentative activity of ruminal contents from finishing cattle adapted to supplemental dried distiller's grains. S. Uwituze*, J. M. Heidenreich, T. G. Nagaraja, J. J. Higgins, and J. S. Drouillard, *Kansas State University, Manhattan*.

**Small Ruminant
Goats and Sheep
Chair: Joan M. Burke, USDA, ARS
205**

- 9:30 AM 345 **ASAS Centennial Presentation:** Impact of animal science research on U.S. goat production and predictions for the future. T. Sahlul^{*1}, L. J. Dawson^{1,2}, T. A. Gipson¹, S. P. Hart¹, R. C. Merkel¹, R. Puchala¹, Z. Wang¹, S. Zeng¹, and A. L. Goetsch¹, *American Institute for Goat Research, Langston University, Langston, OK*, ²*Oklahoma State University, Stillwater*.
- 10:00 AM Discussion
- 10:15 AM 346 Effects of kidding season on performance of meat goat does in Kentucky. K. M. Andries* and E. Sherrow, *Kentucky State University, Frankfort*.
- 10:30 AM 347 Use of electronic rumen boluses for the identification of different goat breeds in the US. S. Carné^{*1}, T. A. Gipson², M. Rovai^{1,2}, R. C. Merkel², and G. Caja¹, ¹*Universitat Autònoma de Barcelona, Bellaterra, Barcelona, Spain*, ²*(Kika) de la Garza American Institute for Goat Research, Langston University, Langston, OK*.
- 10:45 AM Break
- 11:00 AM 348 Comparison of pneumatic, needle-free vaccination to needle vaccination for sheep. M. R. Mousel^{*1}, T. D. Leeds¹, S. N. White², and L. M. Herrmann-Hoesing², ¹*USDA-ARS US Sheep Experiment Station, Dubois, ID*, ²*USDA-ARS Animal Disease Research Unit, Pullman, WA*.
- 11:15 AM 349 Expected rank correlations for varying degrees of ultrasound accuracy. T. D. Leeds^{*1}, C. A. Moffet¹, D. R. Notter², and G. S. Lewis¹, ¹*USDA, ARS, U.S. Sheep Experiment Station, Dubois, ID*, ²*Virginia Polytechnic Institute and State University, Blacksburg*.
- 11:30 AM 350 Backfat thickness, longissimus muscle area, and longissimus muscle depth effects on carcass yield, composition, and value in sheep. T. D. Leeds^{*1}, M. R. Mousel¹, D. R. Notter², H. N. Zerby³, C. A. Moffet¹, and G. S. Lewis¹, ¹*USDA, ARS, US Sheep Experiment Station, Dubois, ID*, ²*Virginia Polytechnic Institute and State University, Blacksburg*, ³*The Ohio State University, Columbus*.
- 11:45 AM 351 Phenotypic correlations among growth and carcass traits of Polypay and White Dorper × Polypay crossbred lambs. D. K. Aaron*, D. G. Ely, E. Fink, B. T. Burden, M. M. Simpson, and A. K. Lunsford, *University of Kentucky, Lexington*.

**Swine Species
Chair: Brett J. White, University of Nebraska–Lincoln
107–108**

- 9:30 AM Council for Agriculture Science and Technology Whitepaper Rollout: Swine carcass disposal options for routine and catastrophic mortality. A. F. Harper^{*1}, and J. Bonner², ¹*Virginia Tech Tidewater AREC, Suffolk*, ²*CAST, Ames, IA*.
- 10:00 AM 352 Multi-breed comparison of body composition in swine using dual energy X-ray absorptiometry (DXA) and magnetic resonance imaging (MRI) under special consideration of Cerdo Iberico. A. M. Scholz*, S. Schneider, and P. V. Kremer, *Ludwig Maximilians University Munich, Oberschleissheim, Bavaria, Germany*.
- 10:15 AM 353 Performance and carcass characteristics of pigs destined for natural label or commodity pork markets. A. F. Harper^{*1}, M. J. Estienne¹, T. D. Pringle², and K. A. Alberti¹, ¹*Virginia Polytechnic Institute and State University, Blacksburg*, ²*University of Georgia, Athens*.
- 10:30 AM 354 Effect of gender and slaughter age of heavy pigs on production of high quality dry-cured hams. M. A. Latorre^{*1}, L. Ariño², and B. Blanco³, ¹*Centro de Investigación y Tecnología Agroalimentaria de Aragón, Zaragoza, Spain*, ²*Integraciones Porcinas S.L., Teruel, Spain*, ³*Jamones y Embutidos Alto Mijares S.L., Teruel, Spain*.
- 10:45 AM 355 Genetic opportunities for pork production without castration. J. W. M. Merks*, K. A. Engelsma, S. Bloemhof, and E. F. Knol, *IPG, Institute for Pig Genetics B.V., Beuningen, the Netherlands*.

- 11:00 AM 356 Lignocellulose as dietary fiber source in swine nutrition. A. Kroismayr^{*4,2}, J. Leibetseder¹, C. Plitzner², K. Neufeld³, and P. Affentranger⁴, ¹University of Veterinary Medicine, Vienna, Austria, ²University of Natural Resources and Applied Life Sciences, Vienna, Austria, ³Animal Nutrition Research Center, Austria, ⁴Agromed Austria, Kremsmünster, Austria/EU, ⁵UFA AG, Switzerland.
- 11:15 AM 357 Effects of crystalline amino acids and sodium bicarbonate on physiological pH in swine. K. L. Dorton, L. N. Edwards*, T. E. Engle, R. M. Enns, and D. B. Anderson, *Colorado State University, Fort Collins.*
- 11:30 AM 358 Effects of inclusion of fermentable carbohydrates on L-tryptophan metabolism by porcine fecal microbiota studied *in vitro*. C. Y. Li*, J. X. Liu, Y. Z. Wang, Y. M. Wu, and J. K. Wang, *Ministry of Education Key Laboratory of Molecular Animal Nutrition, Zhejiang University, Hangzhou, P.R. China.*
- 11:45 AM 359 The impacts of vaccination and feeding a gel nutritional supplement on nursery pig performance. L. Layman*, W. Holt¹, L. Karkiker¹, K. Stalder¹, B. de Rodas², D. Brown², and A. Johnson¹, ¹Iowa State University, Ames, ²Land O'Lakes Purina Feed, Gray Summit, MO.
- 12:00 PM 360 Integrating benefits of organic apple and pork production: Evaluation of *Plum curculio* larva survival with ingestion and passage through the pigs' digestive tract. D. W. Rozeboom*, D. L. Epstein, J. M. B. Moore, and M. E. Whalon, *Michigan State University, East Lansing.*
- 12:15 PM 361 Effects of environment on non-ambulatory, injured and fatigued pigs and losses during transport and lairage at a commercial abattoir. R. Fitzgerald*, K. Stalder¹, N. Matthews², C. Schultz-Kaster², and A. Johnson¹, ¹Iowa State University, Ames, ²Farmland Foods, Milan, MO.

SYMPOSIUM
Teaching/Undergraduate and Graduate Education
The Changing Student and Influence of Technology on Learning
Chair: John Parrish, University of Wisconsin
120

- 9:30 AM 362 **ASAS Centennial Presentation:** Animal science teaching: A century of excellence. D. S. Buchanan*¹ and L. C. Martin², ¹North Dakota State University, Fargo, ²The Ohio State University, Columbus.
- 9:50 AM 363 How current students differ and what impact this has on learning in the classroom. L. C. Martin*, *The Ohio State University, Columbus.*
- 10:10 AM 364 Changes that have occurred in animal science teaching. J. A. Sterle*¹ and J. J. Parrish², ¹Texas A&M University, College Station, ²University of Wisconsin, Madison.
- 10:30 AM Discussion: D. S. Buchanan, L. C. Martin, J. A. Sterle, and J. J. Parrish.
- 10:40 AM Break
- 10:55 AM 365 The use of multimedia in the classroom. H. Khatib*, *University of Wisconsin, Madison.*
- 11:15 AM 366 The use of podcasts in the classroom. J. J. Parrish*, *University of Wisconsin, Madison.*
- 11:35 AM 367 Teaching and learning with an instructional web site. M. A. Wattiaux*, *University of Wisconsin, Madison.*
- 11:55 AM Panel Discussion: Can we go too far in adapting your teaching to student needs? D. S. Buchanan, L. C. Martin, J. A. Sterle, H. Khatib, J. J. Parrish, M. A. Wattiaux.

Danisco International Dairy Science Award Lecture
Chair: Carmen Moraru, Cornell University
Sponsor: Danisco Animal Nutrition
121

- 10:30 AM Introduction
- 10:35 AM Danisco International Dairy Science Award—An overview of the Danisco Award and a summary of the history and results of Dr. Peter Parodi's, 2008 Danisco Awardee, work. D. Bauman, *Cornell University, Ithaca, NY.*
- 11:20 AM Discussion

Nonruminant Nutrition

Feed Additives I

Chairs: Nathan Auspurger, JBS United, and Wilson G. Pond, Cornell University

105–106

- 11:30 AM 368 Effects of mannan oligosaccharide and mannan rich fraction of *Saccharomyces cerevisiae* on production of cytokines by alveolar macrophages. M. T. Che*, R. W. Johnson, K. W. Kelley, and J. E. Pettigrew, *University of Illinois, Urbana*.
- 11:45 AM 369 Effects of dietary yeast culture supplementation to gestation and lactation diets on performance of sows and litters. S. W. Kim*¹, M. Brandherm², B. Newton³, D. Cook³, and I. K. Yoon⁴, ¹*North Carolina State University, Raleigh*, ²*Hitch Pork Producers, Guymon, OK*, ³*Akey, Lewisburg, OH*, ⁴*Diamond V Mills, Cedar Rapids, IA*.
- 12:00 PM 370 *In vitro* efficacy of yeast cell walls to bind pathogenic bacteria and to influence performance of broiler chickens. A. Ganner*, S. Nitsch, and G. Schatzmayr, *Biomin Research Center, Tulln, Lower Austria, Austria*.
- 12:15 PM 371 Effect of enzymatically hydrolyzed yeast supplementation on performance and in protecting broilers against a mild coccidiosis challenge. S. Jalukar*¹, J. Oppy¹, and S. Davis², ¹*Varied Industries Corporation, Mason City, IA*, ²*Colorado Quality Research Inc., Wellington, CO*.

Physiology and Endocrinology

Effects of Environment and Handling on Performance

Chair: David Miller, University of Illinois

Sagamore Ballroom 7

- 11:30 AM 372 Effects of female holding temperature and post-ovulatory oocyte ageing on egg survival in Pilot Peak Lahontan cutthroat trout, *Oncorhynchus clarki henshawi*. J. P. Bigelow*^{1,3}, M. M. Peacock², W. M. Rauw², and L. Gomez-Raya², ¹*US Fish and Wildlife Service, Gardnerville, NV*, ²*University of Nevada, Reno*.
- 11:45 AM 373 Differential effects of heat stress and reduced nutrient intake on production and metabolism in young growing beef cattle. M. D. O'Brien*, J. B. Wheelock, S. R. Sanders, G. C. Duff, R. P. Rhoads, and L. H. Baumgard, *University of Arizona, Tucson*.
- 12:00 PM 374 The influence of bovine temperament on rectal temperature and stress hormones in response to transportation. N. C. Burdick*¹, J. A. Carroll², R. D. Randel³, R. C. Vann⁴, S. T. Willard⁵, L. C. Caldwell¹, J. W. Dailey², L. E. Hulbert², and T. H. Welsh Jr.¹, ¹*AgriLife Research, Texas A&M System, College Station, TX*, ²*USDA-ARS Livestock Issues Research Unit, Lubbock, TX*, ³*AgriLife Research, Texas A&M System, Overton, TX*, ⁴*Mississippi State University, Raymond, TX*, ⁵*Mississippi State University, Mississippi State*.
- 12:15 PM 375 Effects of acclimation on performance, physiologic responses, and puberty attainment of Brahman-crossbred heifers. R. F. Cooke*^{1,2}, B. R. Austin², J. V. Yelich², and J. D. Arthington¹, ¹*University of Florida - IFAS, Range Cattle Research and Education Center, Ona*, ²*University of Florida - IFAS, Animal Sciences, Gainesville*.
- 12:30 PM 376 Effects of acclimation on performance, physiologic responses, and pregnancy rates of Brahman-crossbred cows. R. F. Cooke*^{1,2}, D. B. Araujo^{1,2}, G. C. Lamb³, and J. D. Arthington¹, ¹*University of Florida - IFAS, Range Cattle Research and Education Center, Ona*, ²*University of Florida - IFAS, Animal Sciences, Gainesville*, ³*University of Florida - IFAS, North Florida Research and Education Center, Marianna*.

ADSA Foundation Scholar Lecture

Production

Chair: Lloyd Metzger, South Dakota State University

Sponsor: ADSA Foundation

120

- 2:00 PM Introduction
- 2:05 PM ADSA Foundation Scholar Lecture – Production. Economic optimization of breeding and replacement decisions in dairy cattle. Albert DeVries*, *University of Florida, Gainesville*.
- 2:50 PM Discussion

**Animal Behavior and Well-Being
Livestock: Swine and Sheep
Chair: Trevor Devries, University of Guelph
101–102**

- 2:00 PM Introduction of Centennial speaker
- 2:05 PM 377 **ASAS Centennial Presentation:** Animal behavior as a discipline within the American Society of Animal Science: One hundred years of change and promise. W. R. Stricklin*, *University of Maryland, College Park.*
- 2:35 PM Break
- 2:45 PM 378 The effect of the autosort system on swine well-being. A. E. DeDecker*, J. M. Suchomel, and J. L. Salak-Johnson, *University of Illinois, Urbana.*
- 3:00 PM 379 The motivation of dominant and subordinate gestating sows for an enriched group pen. M. R. Pittman*¹, A. K. Johnson², J. P. Garner¹, R. D. Kirkden¹, B. T. Richert¹, and E. A. Pajor¹, ¹*Purdue University, West Lafayette, IN*, ²*Iowa State University, Ames.*
- 3:15 PM 380 Behavioral changes in young pigs infected with *Salmonella*. J. Higginson*¹, J. T. Gray², and S. T. Millman³, ¹*Department of Population Medicine, University of Guelph, Guelph, ON, Canada*, ²*Department of Microbiology & Immunology, Des Moines University, Des Moines, IA*, ³*Veterinary Diagnostic and Production Animal Medicine, Iowa State University, Ames.*
- 3:30 PM 381 The social behavior carried out by unacquainted sows on mixing may predict the likelihood of escalation into aggression. J. N. Marchant-Forde*¹, J. P. Garner², E. L. Schenck¹, A. K. Johnson³, and D. C. Lay Jr.¹, ¹*USDA-ARS, West Lafayette, IN*, ²*Purdue University, West Lafayette, IN*, ³*Iowa State University, Ames.*
- 3:45 PM 382 The effects of ractopamine, gender, and social rank on aggression and peripheral monoamine levels in finishing pigs. R. Poletto*^{1,2}, J. P. Garner¹, H. W. Cheng², B. T. Richert¹, and J. N. Marchant-Forde², ¹*Purdue University, West Lafayette, IN*, ²*USDA-ARS-LBRU, West Lafayette, IN.*
- 4:00 PM 383 Preference for foods by lambs conditioned with rumen distension and contraction. J. J. Villalba* and F. D. Provenza, *Department of Wildland Resources, Utah State University, Logan.*
- 4:15 PM 384 Feeding behavior and rumen pH of lactating dairy sheep fed diets with different starch, NDF, and peNDF content. G. Molle*¹, F. Boe², V. Giovanetti¹, M. Decandia¹, E. Zerbini³, and A. Cannas², ¹*AGRIS Sardegna, Dipartimento Ricerca nelle Produzioni Animali, Olmedo, Italy*, ²*Dipartimento di Scienze Zootecniche, University of Sassari, Italy*, ³*Cargill Animal Nutrition, Spessa, Italy.*

**Animal Health V
Chair: James Strickland, USDA-ARS
Sagamore Ballroom 2**

- 2:00 PM 385 Advances in respiratory disease research. G. D. Snowder*, *National Center for Foreign Animal and Zoonotic Disease Defense, College Station, TX.*
- 3:00 PM 386 An evaluation of tulathromycin treatment at post-weaning movement on the incidence of respiratory disease and on growth in commercial dairy calves. A. Stanton*¹, S. J. LeBlanc¹, R. T. Dingwell¹, D. Kelton¹, S. T. Millman¹, J. Wormuth¹, and K. E. Leslie¹, ¹*University of Guelph, Guelph, ON, Canada*, ²*CY Heifer Farm, Elba, NY.*
- 3:15 PM 387 An evaluation of a Brix refractometer for measurement of colostrum quality and success of passive transfer. V. Biemann*¹, J. Garner, C. Throop, N. Perkins, and K. Leslie, *University of Guelph, Guelph, ON, Canada.*
- 3:30 PM 388 Comparison of Brix (sugar) refractometer and colostrometer for evaluation of colostrum quality in dairy cows. P. Dinsmore*¹ and A. Skidmore², ¹*Colorado State University, Fort Collins*, ²*Schering-Plough Animal Health, Alexander, NY.*
- 3:45 PM 389 Thermal imaging of the bovine muzzle and the correlation to rectal temperature. S. M. Behrends*, T. B. Schmidt, P. Ryan, S. Willard, M. McGee, C. Welch, C. Trejo, J. O. Buntyn, and C. Huston, *Mississippi State University, Mississippi State.*
- 4:00 PM 390 Sorting heifers with high risk of bovine respiratory disease based on arrival serum haptoglobin concentration. B. P. Holland*, L. O. Burciaga-Robles, D. L. Step, and C. R. Krehbiel, *Oklahoma State University, Stillwater.*

- 4:15 PM 391 Effects of on-arrival vs. delayed clostridial or modified-live respiratory vaccinations on health, performance, bovine viral diarrhea titers, and physiological measures in high-risk, newly received beef calves. J. T. Richeson*¹, E. B. Kegley¹, M. S. Gadberry², P. A. Beck³, J. G. Powell¹, and C. Jones⁴, ¹University of Arkansas, Fayetteville, ²University of Arkansas, Little Rock, ³University of Arkansas, Hope, ⁴Boehringer-Ingelheim Vetmedica Inc., St. Joseph, MO.
- 4:30 PM 392 Effect of length of time between maternal separation and shipping on post-weaning performance of beef calves weaned during the fall. J. W. Bolte*¹, K. C. Olson¹, J. R. Jaeger¹, T. B. Schmidt², D. U. Thomson¹, B. J. White¹, R. L. Larson¹, A. Sproul¹, L. A. Pachenco¹, and M. D. Thomas¹, ¹Kansas State University, Manhattan, ²Mississippi State University, Starkville.
- 4:45 PM 393 Effects of *Mannheimia haemolytica* challenge on blood gas, oxygen consumption and net splanchnic flux of volatile fatty acids in fed or fasted steers. L. O. Burciaga-Robles*, C. R. Krehbiel, D. L. Step, J. W. Dillwith, R. Madden, M. Montelongo, A. W. Confer, J. N. Gilliam, B. P. Holland, and C. L. Goad, *Oklahoma State University, Stillwater.*

SYMPOSIUM
ARPAS Symposium
Livestock Pharmaceuticals: The Past, The Present, The ...
Chair: Marit Arana, A.L. Gilbert Co.
206

- 2:00 PM Symposium Welcome. Marit Arana.
- 2:05 PM ARCAS-ARPAS: Then and Now. W. D. Price, *DAF/OSC/CVM/FDA, Smithburg, MD.*
- 2:20 PM 394 50 years of pharmaceutical technology and its impact on the livestock we produce. R. L. Preston*, *Professor Emeritus, Bellingham, WA.*
- 2:50 PM 395 How are we making bacteria more resistant to antibiotics? Darwinian impacts. T. R. Callaway*¹, J. L. Rychlik², T. S. Edrington¹, R. C. Anderson¹, and D. J. Nisbet¹, ¹ARS, *Food and Feed Safety Research Unit, College Station, TX,* ²Rychlik and Associates, *Hillsboro, OR.*
- 3:20 PM 396 Antibiotic resistance gene transfer in the intestinal tract – Possible implications for agriculture? A. Slayers*, *University of Illinois, Urbana.*
- 3:50 PM 397 Does ionophore resistance risk human health? J. B. Russell*, *ARS/USDA, Ithaca, NY.*
- 4:20 PM Discussion/Wrap-up

SYMPOSIUM
ASAS Graduate Student Symposium
Academia, Industry, Government, or None of the Above: Graduation is Coming, What Next?
Chair: Craig Gifford, University of Idaho
Sponsor: American Society of Animal Science
Sagamore Ballroom 7

- 2:00 PM 398 Applying for an academic position. T. Etherton*, *Penn State University, University Park.*
- 2:25 PM 399 How a career in animal science can help save endangered wildlife species. J. L. Brown*, *National Zoological Park, Conservation and Research Center, Front Royal, VA.*
- 2:50 PM 400 Careers in government. R. D. Green*, *Pfizer Animal Genetics, Sutton, NE.*
- 3:15 PM 401 Graduate student career opportunities in the animal science industry. J. F. Stika*, *Certified Angus Beef LLC, Wooster, OH.*
- 3:40 PM 402 Opportunities for graduate students in American Society of Animal Science. A. E. Radunz*, *The Ohio State University, Columbus.*

Breeding and Genetics
Applications of Genomic Analysis
Chair: Janice Rumph, Michigan State University
Sagamore Ballroom 3

- 2:00 PM 403 Validation of multiple marker DNA profiles for carcass merit across multiple populations of beef cattle. J. D. Nkrumah* and B. W. Woodward, *Merial Limited, Duluth, GA.*
- 2:15 PM 404 Genetic prediction of beef tenderness using a multi-marker SNP panel. S. P. Miller*¹, M. J. Kelly¹, and D. J. Nkrumah², ¹*University of Guelph, Guelph, ON, Canada*, ²*Merial Limited, Duluth, GA.*
- 2:30 PM 405 Multiple marker DNA profiles for production, fertility, and functional traits in Holstein cattle. J. D. Nkrumah and B. W. Woodward*, *Merial Limited, Duluth, GA.*
- 2:45 PM 406 Application of a Bayesian approach to identify candidate markers for marker assisted selection in pigs. M. A. Cleveland* and N. Deeb, *Genus plc, Hendersonville, TN.*
- 3:00 PM 407 Genomic selection of purebreds using data from admixed populations. A. Toosi*¹, R. Fernando¹, J. C. M. Dekkers¹, and R. L. Quaas², ¹*Iowa State University, Ames*, ²*Cornell University, Ithaca, NY.*
- 3:15 PM 408 A marker-assisted assessment of genotype by environment interaction: SNP-mortality association in broilers in two hygiene environments. N. Long¹, D. Gianola¹, G. J. M. Rosa*¹, K. A. Weigel¹, and S. Avendaño², ¹*University of Wisconsin, Madison*, ²*Aviagen Ltd., Newbridge, UK.*
- 3:30 PM Break
- 3:45 PM 409 Linkage disequilibrium and persistence of phase in Holstein Friesian, Jersey and Angus cattle. A. P. W. De Roos*¹, B. J. Hayes², R. J. Spelman³, and M. E. Goddard^{2,4}, ¹*CRV, Arnhem, the Netherlands*, ²*Animal Genetics and Genomics, Primary Industries Research Victoria, Attwood, Australia*, ³*Livestock Improvement Corporation, Hamilton, New Zealand*, ⁴*University of Melbourne, Melbourne, Australia.*
- 4:00 PM 410 Estimated linkage disequilibrium in a multi-breed beef herd based on the Illumina BovineSNP50 BeadChip. M. J. Kelly*¹, M. Sargolzaei¹, Z. Wang², D. Kolbehdari², P. Stothard², F. Schenkel¹, S. S. Moore², and S. P. Miller¹, ¹*University of Guelph, Guelph, ON, Canada*, ²*University of Alberta, Edmonton, AB, Canada.*
- 4:15 PM 411 Linkage disequilibria of the SLA region loci with malignant melanoma in Sinclair swine. L. Gomez-Raya*¹, M. Miller¹, C. S. Ho², V. Kirchoff¹, D. M. Smith², W. M. Rauw¹, D. Thain¹, A. Rink¹, and C. W. Beattie³, ¹*University of Nevada, Reno*, ²*University of Michigan, Ann Arbor*, ³*University of Illinois, Chicago.*
- 4:30 PM 412 QTL with dominance effect affecting residual feed intake on BTA6. G. C. Márquez*¹, R. M. Enns¹, M. D. Grosz², and M. D. MacNeil³, ¹*Colorado State University, Fort Collins*, ²*Monsanto Co., St. Louis, MO*, ³*USDA, Agricultural Research Service, Miles City, MT.*
- 4:45 PM 413 Confirmation of quantitative trait loci for carcass and meat quality traits on pig chromosome 6 in a Duroc × Pietrain resource population. I. S. Choi*, R. O. Bates, N. E. Raney, D. B. Edwards, M. E. Doumit, and C. W. Ernst, *Michigan State University, East Lansing.*

SYMPOSIUM

Companion Animals

Perceptions and Implications of Companion Animals in Research and Teaching – Domestically and Globally

Chair: Ryan Yamka, Hill's Pet Nutrition Inc.

Sponsors: European Association of Animal Production, Hill's Science Diet, Iams, and Nestle Purina
105–106

- 2:00 PM Introduction. R. Yamka, *Hill's Pet Nutrition Inc.*
- 2:05 PM 414 **ASAS Centennial Presentation:** Evolution of companion animals – A perception shift. L. P. Case*^{1,2}, ¹*University of Illinois, Urbana*, ²*AutumnGold Consulting, Mahomet, IL.*
- 2:35 PM 415 Past-present perceptions and research in companion animals – A domestic viewpoint. G. Czarniecki-Maulden*, *Nestle Purina Research Center, St. Louis, MO.*

- 2:55 PM 416 Past-present perceptions and research in companion animals – An international viewpoint. P. Nguyen*¹, L. Prola², R. C. Nap³, P. P. Mussa², and J. Nery¹, ¹*National Veterinary School of Nantes, Nantes, France*, ²*Veterinary School of Turin, Turin, Italy*, ³*Uppertunity Consultants, Utrecht, the Netherlands*.
- 3:15 PM 417 Evolution of regulatory issues in companion animals. S. L. Traylor*, *Alltech Inc., Nicholasville, KY*.
- 3:35 PM 418 Trends in pet food safety. R. Johnson*, *Private Pet Food Consultant*.
- 3:55 PM Break
- 4:15 PM 419 Alternatives to live animal models in companion animals: Research location shift. G. Kuhlman* and M. A. Tetrick, *Procter & Gamble Pet Care Research & Development, Lewisburg, OH*.
- 4:30 PM 420 Alternative systems for evaluating digestion in companion animals. D. L. Harmon* and M. R. C. de Godoy, *University of Kentucky, Lexington*.
- 4:45 PM 421 Computer modeling: An alternative to live companion animal testing. R. M. Yamka* and N. Z. Frantz, *Hill's Pet Nutrition Inc., Topeka, KS*.
- 5:00 PM 422 **ASAS Centennial Presentation:** The future of teaching and research in companion animal biology in departments of animal sciences. J. McNamara*, *Washington State University, Pullman*.

SYMPOSIUM
Dairy Foods
Changes and Challenges of Probiotics in Dairy Products
Chair: David McCoy, Chr. Hansen
121

- 2:00 PM 423 Probiotics: From Metchnikoff to bioactives. N. P. Shah*, *Victoria University, Melbourne, Victoria, Australia*.
- 2:30 PM 424 Probiotics in natural cheese. B. Dias* and N. Mix, *Kraft Foods Inc, Glenview, IL*.
- 3:00 PM 425 Development of yoghurt and specialty milks containing probiotics. C. P. Champagne*, *Agriculture and Agri-Food Canada, St. Hyacinthe, QC, Canada*.
- 3:30 PM Break
- 3:45 PM 426 Recent trends in the microencapsulation and delivery of probiotics in dairy foods. K. Kailasapathy*, *University of Western Sydney, Hawkesbury, NSW, Australia*.
- 4:15 PM 427 Identification of probiotic features in *Lactobacillus acidophilus* affected by dairy delivery. M. A. Azcarate-Peril*, R. Tallon, and T. R. Klaenhammer, *North Carolina State University, Raleigh*.

SYMPOSIUM
Extension Education
From 40 Acres and a Mule to Today: Historical Perspective of Extension Programming
Chair: Joe Harrison, Washington State University
109–110

- 2:00 PM 428 **ASAS Centennial Presentation:** History of extension. J. Paterson*, *Montana State University, Bozeman, MT*.
- 2:30 PM 429 **ASAS Centennial Presentation:** Evolution of delivery methods. M. Hutjens*, *University of Illinois, Urbana, IL*.
- 3:00 PM 430 **ASAS Centennial Presentation:** From 40 acres and a mule to today: Historical perspective of extension programming: HorseQuest. E. A. Greene*, *University of Vermont, Burlington*.
- 3:20 PM 431 **ASAS Centennial Presentation:** DAIReXNET – Method of delivering extension programming for the dairy industry which transcends traditional methods of information delivery and state/regional borders. D. M. Amaral-Phillips* and L. McClanahan, *University of Kentucky, Lexington*.

- 3:40 PM 432 **ASAS Centennial Presentation:** Beef Cattle Clearinghouse: An eXtension Website. R. Rasby*¹, G. Selk², L. Anderson³, R. Weaber⁴, T. Marston⁵, C. Wright⁶, J. Paterson⁷, C. Mathis⁸, G. Lardy⁹, J. Whittier¹⁰, D. Strohbahn¹¹, T. McCollum¹², S. Paisley¹³, C. Lane¹⁴, D. Hamernik¹⁵, ¹University of Nebraska, Lincoln, ²Oklahoma State University, Stillwater, ³University of Kentucky, Lexington, ⁴University of Missouri, Columbia, ⁵Kansas State University, Manhattan, ⁶South Dakota State University, Brookings, ⁷Montana State University, Bozeman, ⁸New Mexico State University, Las Cruces, ⁹North Dakota State University, Fargo, ¹⁰Colorado State University, Fort Collins, ¹¹Iowa State University, Ames, ¹²Texas A&M University, Amarillo, ¹³University of Wyoming, Laramie, ¹⁴University of Tennessee, Knoxville, ¹⁵USDA-CSREES, Washington, DC.
- 4:00 PM 433 **ASAS Centennial Presentation:** Pork Information Gateway in eXtension. D. J. Meisinger*, US Pork Center of Excellence, Iowa State University, Ames.
- 4:20 PM Discussion

Forages and Pastures II

Chair: Guillermo Scaglia, Louisiana State University

103

- 2:00 PM 434 Effect of limiting hay access time on dry matter intake by beef cows. C. J. Fleenor*, R. P. Lemenager, M. C. Claeys, and S. L. Lake, Purdue University, West Lafayette, IN.
- 2:15 PM 435 Effect of ruminal fill on foraging behavior, intake rate, and plasma ghrelin, serum insulin and glucose levels of cattle grazing a vegetative micro-sward. P. Gregorini*¹, K. J. Soder¹, and R. S. Kensing², ¹USDA-ARS Pasture Systems and Watershed Management Research Unit, University Park, PA, ²Pennsylvania State University, University Park.
- 2:30 PM 436 Microclimate effects on temporal/spatial distribution of beef cows in cool-season grass pastures. D. Bear*, J. Russell, and M. Haan, Iowa State University, Ames.
- 2:45 PM 437 Grazing management and microclimatic effects on cattle distribution patterns in riparian pastures. M. Haan, J. Russell*, D. Bear, and D. Morrical, Iowa State University, Ames.
- 3:00 PM 438 Morphological composition of *marandu palisadegrass* pasture managed under different herbage allowance grazed by dairy cattle in rotational stocking system. A. C. R. Ruggieri*¹, E. R. Januskiewicz¹, D. R. Casagrande^{1,3}, R. A. Reis^{1,2}, and M. A. Magalhães^{1,2}, ¹São Paulo State University, Jaboticabal, São Paulo, Brazil, ²Conselho Nacional de desenvolvimento Científico e Tecnológico, Brasília, DF, Brazil, ³Fundação de Amparo a Pesquisa do Estado de São Paulo, São Paulo, Brazil.
- 3:15 PM 439 Evaluation of forage sampling method and chemical composition of diet selection by cattle grazing subtropical forages during the summer. A. Hughes* and M. Hersom, University of Florida, Gainesville.
- 3:30 PM 440 Productivity and *in vitro* gas production of leaves and stems of *Pennisetum purpureum* cv. Cuba CT-115 in Northern Mexico. E. Gutiérrez-Ornelas*¹, A. Cerrillo-Soto², A. S. Juárez-Reyes², H. Bernal-Barragán¹, H. Morales-Treviño¹, R. S. Herrera³, and R. Mejías³, ¹Facultad de Agronomía Universidad Autónoma de Nuevo León, Marín N. L. México. ²Facultad de Medicina Veterinaria y Zootecnia Universidad Juárez del Estado de Durango, Durango, México, ³Instituto de Ciencia Animal, San José de Las Lajas, Habana, Cuba.

Horse Species II

Chair: Jason Turner, New Mexico State University

104

- 2:00 PM 441 **ASAS Centennial Presentation:** Historical review and future outlook of equine nutrition. H. Hintz*, Cornell University, Ithaca, NY.
- 3:00 PM 442 Glycemic and insulinemic responses differ in the morning versus the afternoon. L. M. Williamson¹, W. B. Staniar*², and R. J. Geor¹, ¹Virginia Polytechnic Institute and State University, Blacksburg, ²Pennsylvania State University, State College.
- 3:15 PM 443 Effect of different ingredients or ingredient combinations on glycemic and insulinemic responses in horses. J. L. Shelton*¹, B. D. Nielsen², and C. I. O'Connor-Robison², ¹Cargill Animal Nutrition, Minnetonka, MN, ²Michigan State University, East Lansing.
- 3:30 PM 444 Glycemic response to meal length in equines. J. R. Bland*¹, E. L. Wagner¹, and W. H. McElhenney², ¹Auburn University, Auburn, AL, ²Tuskegee University, Tuskegee, AL.
- 3:45 PM Break

- 4:00 PM 445 Aquacid alters markers of bone metabolism in yearling Arabians. B. D. Nielsen*, R. E. Cate, C. I. O'Connor-Robison, and D. S. Rosenstein, *Michigan State University, East Lansing.*
- 4:15 PM 446 Inflammation and vitamin E intake in horses during a CCI**/CCI*** three-day event. C. A. Williams*¹, E. D. Lamprecht¹, and A. O. Burk², ¹Rutgers, *The State University of New Jersey, New Brunswick*, ²University of Maryland, *College Park.*
- 4:30 PM 447 Effect of high fat diets and fat source on immune function in yearling horses. K. R. Vineyard*, L. K. Warren, and J. Kivipelto, *University of Florida, Gainesville.*
- 4:45 PM 448 Seasonal effects of diet on the omega-6 and omega-3 fatty acid composition of plasma and red blood cells in grazing horses. L. K. Warren* and J. Kivipelto, *University of Florida, Gainesville.*

Lactation Biology I
Chair: Ben Corl, Virginia Polytech
204

- 2:00 PM 449 The acute response to milk removal and the long-term response to frequent milking treatment involve distinct mechanisms. E. H. Wall*, J. P. Bond, and T. B. McFadden, *University of Vermont, Burlington.*
- 2:15 PM 450 The effects of increased milking frequency during early lactation on metabolism and mammary cell proliferation in Holstein cows. F. Soberon*¹, J. L. Lukas¹, M. E. Van Amburgh¹, A. V. Capuco², and T. R. Overton¹, ¹Cornell University, *Ithaca, NY*, ²Bovine Functional Genomics Laboratory, *USDA-ARS, Beltsville, MD.*
- 2:30 PM 451 Effects of serotonin receptor antagonists on milk protein gene expression in primary bovine mammary epithelial cells. L. Hernandez*^{1,2}, J. Collier¹, L. Baumgard¹, N. Horseman², and R. Collier¹, ¹University of Arizona, *Tucson*, ²University of Cincinnati, *Cincinnati.*
- 2:45 PM 452 Effect of experimental tight junction opening on milk production. H. Ben Chedly*¹, M. Boutinaud¹, P. Lacasse³, R. Bounhamous², and P.-G. Marnet^{2,1}, ¹INRA, *Saint Gilles, France*, ²Agrocampus Rennes, *Rennes, France*, ³AAFC-Dairy and Swine R&D Centre, *Sherbrooke, QC, Canada.*
- 3:00 PM Break
- 3:15 PM 453 Suppression of bovine α S1-casein gene expression during involution of the mammary gland is associated with increased DNA methylation at a STAT5-binding site in the α S1-casein promoter. K. Singh*¹, K. Swanson¹, C. Couldrey¹, H.-M. Seyfert², and K. Stelwagen¹, ¹AgResearch Ltd, *Ruakura Research Centre, Hamilton, New Zealand*, ²Research Institute for the Biology of Farm Animals (FBN), *Dummerstorf, Germany.*
- 3:30 PM 454 Extending lactation in pasture-based dairy cows: Effect of genetic strain and diet on hormones and metabolites. J. Kay*, P. Aspin, C. Phyn, J. Roche, D. Clark, and E. Kolver, *DairyNZ, Hamilton, New Zealand.*
- 3:45 PM 455 Effect of the prolactin-release inhibitor Quinagolide on dairy cows. P. Lacasse*¹, V. Lollivier², R. M. Bruckmaier³, Y. R. Boisclair⁴, G. W. Wagner⁵, and M. Boutinaud², ¹Dairy and Swine R&D Centre, *Sherbrooke, QC, Canada*, ²INRA, *Agrocampus Rennes, St-Gilles, France*, ³University of Bern, *Switzerland*, ⁴Cornell University, *Ithaca, NY*, ⁵University of Western Ontario, *London, ON, Canada.*
- 4:00 PM 456 Effect of estradiol cypionate injected at dry-off on lactose concentrations in bovine plasma. M. S. Gulay*¹, M. J. Hayen², H. H. Head², and K. C. Bachman², ¹Mehmet Akif Ersoy University, *Burdur, Turkey*, ²University of Florida, *Gainesville.*
- 4:15 PM 457 Heat stress abatement for dry cows: Does cooling improve transition into lactation? B. C. do Amaral*¹, J. Hayen¹, E. E. Connor², S. Tao¹, and G. E. Dahl¹, ¹University of Florida, *Gainesville*, ²USDA-ARS, *Beltsville, MD.*

Meat Science and Muscle Biology
Beef Quality
Chair: Dean Pringle, The University of Georgia
Sagamore Ballroom 1

- 2:00 PM 458 National Market Cow and Bull Beef Quality Audit-2007: A survey of producer-related defects. J. D. W. Nicholson¹, R. J. Maddock², R. J. Delmore³, T. E. Lawrence⁴, W. R. Henning⁵, T. D. Pringle⁶, D. D. Johnson⁷, J. C. Paschal¹, R. J. Gill¹, J. J. Cleere¹, B. B. Carpenter¹, R. V. Machen¹, J. P. Banta¹, J. W. Savell¹, D. S. Hale^{*1}, and D. B. Griffin¹, ¹Texas A&M University, College Station, ²North Dakota State University, Fargo, ³California Poly Technical University, San Luis Obispo, ⁴West Texas A&M University, Canyon, ⁵Pennsylvania State University, University Park, ⁶University of Georgia, Athens, ⁷University of Florida, Gainesville.
- 2:30 PM 459 Expression of myosin heavy chain mRNA in skeletal muscle of zilpaterol-HCl fed steers. R. J. Rathmann^{*1}, T. J. Baxa², J. T. Vasconcelos¹, M. L. Galyean¹, B. J. Johnson², and M. F. Miller¹, ¹Texas Tech University, Lubbock, ²Kansas State University, Manhattan.
- 2:45 PM 460 Zilpaterol-HCl feeding reduces myosin heavy chain mRNA abundance in skeletal muscle of finishing steers. T. J. Baxa^{*1}, J. P. Hutcheson², M. F. Miller³, W. T. Nichols², M. N. Streeter², D. A. Yates², and B. J. Johnson¹, ¹Kansas State University, Manhattan, ²Intervet Inc., Millsboro, DE, ³Texas Tech University, Lubbock.
- 3:00 PM 461 Effects of ractopamine hydrochloride and zilpaterol hydrochloride fed to beef steers for the final 33 days of the finishing period on growth performance, carcass traits and Warner Bratzler shear force. W. J. Platter¹, R. A. Gomez¹, W. T. Choat^{*1}, S. M. Scramlin², and F. K. McKeith², ¹Elanco Animal Health, Greenfield, IN, ²University of Illinois, Urbana.
- 3:15 PM 462 Sensory attributes of beef from steers finished with corn or high-tannin sorghum. R. E. Larraín^{*1,2}, D. M. Schaefer¹, and J. D. Reed¹, ¹University of Wisconsin, Madison, ²Pontificia Universidad Católica de Chile, Santiago, RM, Chile.
- 3:30 PM 463 Development of a natural beef production and marketing program for Holstein bull calves. M. J. Baker^{*1}, D. G. Fox¹, W. R. Henning², L. O. Tedeschi³, and D. J. Ketchen¹, ¹Cornell University, Ithaca, NY, ²Pennsylvania State University, University Park, ³Texas A&M University, College Station.
- 3:45 PM 464 Fatty acid composition of beef finished on various forage species or concentrates. S. K. Duckett^{*1}, J. P. S. Neel², J. P. Fontenot³, W. Clapham², and W. S. Swecker Jr.³, ¹Clemson University, Clemson, SC, ²USDA-ARS, Beaver, WV, ³Virginia Tech University, Blacksburg.
- 4:00 PM 465 Effect of finishing steers on different forages or high concentrate diet on rib composition, color, and palatability. S. K. Duckett^{*1}, J. P. S. Neel², J. P. Fontenot³, W. Clapham², and W. S. Swecker Jr.³, ¹Clemson University, Clemson, SC, ²USDA-ARS, Beaver, WV, ³Virginia Tech University, Blacksburg.

SYMPOSIUM

Nonruminant Nutrition

Oxidative Stress and the Use of Antioxidants for Nonruminant Animals

Chair: Sung Woo Kim, North Carolina State University

Sponsors: Archer Daniels Midland Company, Diamond V Mills, European Association of Animal Production, Evonik Degussa Corp., Mycogen, and Novus International
Sagamore Ballroom 4

- 2:00 PM Introduction. S. W. Kim, *North Carolina State University.*
- 2:10 PM 466 Oxidative stress during the lifecycle of animals. W. P. Weiss^{*} and D. C. Mahan, *The Ohio State University, Wooster and Columbus.*
- 2:50 PM 467 Roles in animals of the antioxidant micronutrients vitamin E, vitamin C, and selenium. R. F. Burk^{*}, *Vanderbilt University, Nashville, TN.*
- 3:35 PM 468 Bioavailability of natural and synthetic vitamin E in sows and their progeny. C. Lauridsen^{*}, *University of Aarhus, Tjele, Denmark.*
- 4:20 PM 469 Synthetic antioxidant applications in nonruminants. R. J. Harrell^{*}, J. Andrews, V. Robinson, M. Vazquez-Anon, and S. Carter, *Novus International Inc., St Charles, MO.*

Physiology and Endocrinology
The Physiology of Gestation and the Post-Partum Interval
Chair: Rhonda Vann, Mississippi State University
Sagamore Ballroom 6

- 2:00 PM 470 Fibroblast growth factor 2-induced expression of interferon-tau is mediated by protein kinase C in bovine trophectoderm. Q. Yang*, S. E. Johnson, and A. D. Ealy, *University of Florida, Gainesville.*
- 2:15 PM 471 Expression of fibroblast growth factors and their receptors during pre- and peri-attachment development in bovine conceptuses. F. N. T. Cooke* and A. D. Ealy, *The University of Florida, Gainesville.*
- 2:30 PM 472 Reduced angiogenic factor expression in cotyledonary (COT) arteries of overnourished, obese ewes at midgestation. Y. Ma*¹, M. J. Zhu¹, P. W. Nathanielsz^{1,2}, and S. P. Ford¹, ¹*University of Wyoming, Laramie,* ²*University of Texas, San Antonio.*
- 2:45 PM 473 Increased circulating progesterone (P₄) levels during the estrous cycle in offspring of nutrient restricted ewes. L. A. George*¹, P. W. Nathanielsz^{1,2}, and S. P. Ford¹, ¹*University of Wyoming, Laramie,* ²*University of Texas, San Antonio.*
- 3:00 PM 474 Increased macrophage migration inhibitory factor (MIF) in the pancreas of fetuses gestated by overnourished, obese ewes. L. Zhang*¹, M. J. Zhu¹, P. W. Nathanielsz^{1,2}, and S. P. Ford¹, ¹*University of Wyoming, Laramie,* ²*University of Texas Health Sciences Center, San Antonio, TX.*
- 3:15 PM 475 Effects of soy-derived phytoestrogen and estradiol exposure on reproductive development in male neonatal pigs. K. Necaie*¹, K. Moulton¹, D. Christiansen¹, K. Walters¹, M. Crenshaw¹, C. Scanes², and P. Ryan¹, ¹*Mississippi State University, Starkville,* ²*University of Wisconsin, Milwaukee.*
- 3:30 PM Break
- 3:45 PM 476 Meta-analysis of progesterone supplementation during early pregnancy in cattle. G. E. Mann*, *University of Nottingham, Sutton Bonington Campus, Loughborough, UK.*
- 4:00 PM 477 Effect of endocannabinoid (EC) agonists on cow corpus luteum (CL) function *in vitro*. C. W. Weems*¹, Y. S. Weems¹, A. W. Lewis², D. A. Neuendorff², and R. D. Randel², ¹*University of Hawaii, Honolulu,* ²*Texas A&M University, Overton.*
- 4:15 PM 478 Peripheral concentrations of insulin are negatively correlated with cytochrome P450 3A activity and mRNA expression in dairy cows. C. O. Lemley*, L. R. Tager, K. M. Krause, and M. E. Wilson, *West Virginia University, Morgantown.*
- 4:30 PM 479 Biostimulatory effect of bulls alters characteristics of cortisol concentration patterns before resumption of ovulatory activity in postpartum, anovular, suckled beef cows. S. A. Tauck*, J. R. Olsen, J. R. C. Wilkinson, and J. G. Berardinelli, *Montana State University, Bozeman.*
- 4:45 PM 480 Effects of oro-nasal administration of androstadienone on characteristics of cortisol concentrations in postpartum, suckled beef cows. J. R. C. Wilkinson*, S. A. Tauck, J. R. Olsen, and J. G. Berardinelli, *Montana State University, Bozeman.*

Production, Management and the Environment
Disease, Management and Environment
Chair: Micheal Brouk, Kansas State University
205

- 2:00 PM 481 Milking procedures and prevalence of contagious mastitis pathogens on US dairy operations. J. E. Lombard*¹, C. A. Koprak¹, T. Van Slyke², F. Welcome², and Y. Schukken², ¹*USDA:APHIS:VS:Centers for Epidemiology and Animal Health, Fort Collins, CO,* ²*Quality Milk Production Services, Ithaca, NY.*
- 2:15 PM 482 Reliability of a standardized environmental sampling protocol to quantify *Mycobacterium avium* spp. *paratuberculosis* in free-stall dairies. S. S. Aly*¹, R. J. Anderson², I. A. Gardner¹, R. H. Whitlock³, T. Fyock³, J. M. Adaska⁴, and J. Jiang¹, ¹*University of California, Davis,* ²*California Department of Food and Agriculture, Animal Health Branch, Sacramento, CA,* ³*University of Pennsylvania, Kennett Square,* ⁴*California Animal Health and Food Safety Laboratory, Tulare Branch, Tulare, CA.*
- 2:30 PM 483 Prevalence of bovine viral diarrhoea virus in bulk tank milk and associations with herd characteristics on US dairy operations. J. E. Lombard*¹, E. J. Dubovi², and C. A. Koprak¹, ¹*USDA:APHIS:VS:Centers for Epidemiology and Animal Health, Fort Collins, CO,* ²*Cornell University, Ithaca, NY.*

- 2:45 PM 484 Prevalence of *Mycobacterium avium* subspecies *paratuberculosis* and associations with herd characteristics on US dairy operations. J. E. Lombard^{*1}, R. T. Capse², B. A. Wagner¹, J. B. Payeur², and C. P. Fossler¹, ¹USDA:APHIS:VS:Centers for Epidemiology and Animal Health, Fort Collins, CO, ²USDA:APHIS:VS:National Veterinary Services Laboratories, Ames, IA.
- 3:00 PM 485 Puncture force resistance of hoof horn from New Zealand (NZ) Friesian and Jersey cross NZ Friesian dairy cattle. L. A. Lethbridge, J. K. Margerison*, G. W. Reynolds, R. Laven, and C. S. Brennan, *Massey University*.
- 3:15 PM 486 Incidence of peripartum health related problems in Argentine dairy herds. C. Corbellini¹, F. Busso¹, F. Bargo², B. Suarez², J. Grigera^{*2}, M. Podetti², and G. Tuñon³, ¹INTA, Argentina, ²Elanco, Argentina, ³AACREA, Argentina.
- 3:30 PM 487 Relationships between production measurements and sow longevity in a university research herd. M. S. Hicks* and W. F. Owsley, *Auburn University, Auburn, AL*.

SYMPOSIUM
Ruminant Nutrition
Glycerin as a Feed for Ruminants
Chair: Cathy Bandyk, QLF
Sponsors: Prince Agri-Products Inc., and Vi-Cor, Varied Industries Corporation
500 Ballroom

- 2:00 PM Introduction. C. Bandyk, *QLF*.
- 2:05 PM 488 Glycerin as a feed ingredient, official definition(s) and approvals. R. S. Sellers*, *American Feed Industry Association, Arlington, VA*.
- 2:30 PM 489 Ruminal and physiological metabolism of glycerin. C. R. Krebbiel*, *Oklahoma State University, Stillwater*.
- 3:00 PM 490 Glycerin as a feed for ruminants: Using glycerin in high-concentrate diets. J. S. Drouillard*, *Kansas State University, Manhattan*.
- 3:30 PM 491 Using glycerin as a supplement for forage-fed ruminants. B. W. Hess^{*1}, S. L. Lake², and S. A. Gunter³, ¹University of Wyoming, Laramie, ²Purdue University, West Lafayette, IN, ³University of Arkansas, Hope.
- 4:15 PM 492 Use of glycerin in dairy diets. S. S. Donkin*, *Purdue University, West Lafayette, IN*.

Small Ruminant
Sheep
Chair: Kenneth M. Andries, Kentucky State University
107–108

- 2:00 PM 493 **ASAS Centennial Presentation:** Impacts of animal science research on US sheep production and predictions for the future. C. J. Lupton*, *Texas AgriLife Research, San Angelo, TX*.
- 2:30 PM Discussion
- 2:45 PM 494 Impact of grazing systems on management of gastrointestinal nematodes in weaned lambs in Arkansas. J. M. Burke^{*1}, J. E. Miller², and T. H. Terrill³, ¹USDA, ARS, Booneville, AR, ²Louisiana State University, Baton Rouge, ³Fort Valley State University, Fort Valley, GA.
- 3:00 PM 495 Nutrient digestibility of straw-based diets by sheep. C. Anderson Alexander-Huerta, A. S. Juárez-Reyes*, M. Murillo-Ortiz, R. Montoya-Escalante, G. Nevárez-Carrasco, and M. A. Cerrillo-Soto, *Universidad Juárez del Estado de Durango, Durango, Dgo. México*.
- 496 Withdrawn by author.
- 3:15 PM Break
- 3:45 PM 497 Ability of ewes to rebreed while lactating in spring. K. M. Jordan*, J. W. Knight, and D. R. Notter, *Virginia Polytechnic Institute and State University, Blacksburg*.
- 4:00 PM 498 Lactational and reproductive effects of melatonin in lactating dairy ewes mated during Spring. G. Caja*, A. A. K. Salama, S. Carné, E. Albanell, X. Such, and R. Casals, *Universitat Autònoma de Barcelona, Bellaterra, Barcelona, Spain*.

- 4:15 PM 499 Effect of protein degradability on milk production of dairy ewes. C. M. Mikolayunas*, L. E. Armentano, and D. L. Thomas, *University of Wisconsin, Madison*.
- 4:30 PM 500 Implementing electronic identification for milk recording in dairy sheep. A. Ait-Saidi, A. A. K. Salama, S. Carné*, and G. Caja, *Universitat Autònoma de Barcelona, Bellaterra, Barcelona, Spain*.

Teaching/Undergraduate and Graduate Education
Teaching in the Animal Sciences
Chairs: Jeannette Moore, North Carolina State University, and John Parrish,
University of Wisconsin-Madison
203

- 2:00 PM 501 The Academic Roadmap: A web-based tool for improving student recruitment, retention and success in the agricultural sciences. K. H. Petersson*, D. Grossman-Garber, C. English, T. P. Husband, D. P. Murray, and A. I. Veeger, *University of Rhode Island, Kingston*.
- 2:15 PM 502 Capstone experiences in animal and poultry sciences: Opportunity and challenge. C. M. Wood*, W. E. Beal, E. A. Dunnington, D. E. Eversole, H. Jiang, A. P. McElroy, R. K. Splan, and M. L. Wahlberg, *Virginia Tech, Blacksburg*.
- 2:30 PM 503 The Graduate Experience Program. J. A. Atkins*¹, D. L. McNamara², and G. W. Jesse¹, ¹*University of Missouri, Columbia*, ²*University of Wisconsin, Platteville*.
- 2:45 PM 504 A holistic approach to undergraduate curriculum review and revision in animal and poultry sciences: Process and results. C. M. Wood*, W. E. Beal, E. A. Dunnington, D. E. Eversole, A. P. McElroy, and R. K. Splan, *Virginia Tech, Blacksburg*.
- 3:00 PM Break
- 3:15 PM 505 The challenges and opportunities of teaching a virtual introduction to animal science course. M. Latour*, *Purdue University, West Lafayette, IN*.
- 3:30 PM 506 Engaging students with service learning within an animal science curriculum at Texas Tech University- a ten year perspective. H. Brady*, *Texas Tech University, Lubbock*.
- 3:45 PM 507 Use of eID to monitor classroom attendance. L. D. Luqué* and D. A. Nichols, *Kansas State University, Manhattan*.
- 4:00 PM 508 'A Postcard Home' provides opportunity for first-year students to gain writing experience. J. M. Mapes*, G. M. Hill, M. W. Orth, and J. E. Link, *Michigan State University, East Lansing*.

Thursday, July 10
POSTER PRESENTATIONS
Animal Behavior and Well-Being
Methodology
Exhibit Hall CDE

- TH1 Functional test of the hypothalamic-pituitary-adrenal axis of sows which perform various abnormal behaviors. D. C. Lay Jr.*, *Livestock Behavior Research Unit, Agricultural Research Service–USDA, West Lafayette IN.*
- TH2 Validation of a water HOBO and the Noldus Observer for drinking behavior in the nursery pig. A. M. Meiszberg*¹, A. K. Johnson¹, J. W. Dailey², J. A. Carroll², L. J. Sadler¹, J. R. Garvey¹, and N. Krebs³, ¹*Animal Science, Iowa State University, Ames*, ²*USDA-ARS, Livestock Issues Research Unit, Lubbock, TX*, ³*Pork Industry Institute, Texas Tech University, Lubbock.*
- TH3 Temporary glycosuria alters molasses consumption in Holstein calves. C. S. Wilcox*¹, M. M. Schutz¹, S. S. Donkin¹, and S. D. Eicher², ¹*Purdue University, West Lafayette, IN*, ²*USDA-ARS, West Lafayette, IN.*
- TH4 Effect of alternative models for increasing stocking density on the lying behavior, hygiene, and short-term productivity of lactating Holstein dairy cattle. P. D. Krawczel*^{1,2}, C. S. Mooney¹, H. M. Dann¹, M. P. Carter¹, R. E. Butzler¹, C. S. Ballard¹, and R. J. Grant¹, ¹*William H. Miner Agricultural Research Institute, Chazy, NY*, ²*Department of Animal Science, The University of Vermont, Burlington.*

Animal Health
General
Exhibit Hall CDE

- TH5 Hard water preservative effect of Birjand Quanuts to reduce lead acetate toxicity on *Capoeta fusca*. A. Omid* and H. Farhangfar, *Birjand University, Birjand, Iran.*
- TH6 Less common complication of traumatic reticulitis in cattle: Abscess on left thoracic wall. A. Omid*, *Birjand University, Birjand, Iran.*
- TH7 Comparison of attachment to feed ingredients of whole *E. coli* K88 cells and purified F4/K88 fimbriae. P. M. Becker¹, S. Galetti², J. Van der Meulen¹, A. Bannink*¹, and H. C. A. Widjaja¹, ¹*Wageningen University Research Centre, Lelystad, the Netherlands*, ²*University of Milan, Milan, Italy.*
- TH8 Effects of spray-dried porcine plasma on nasal associated lymphoid tissue in a lung inflammation model in mice. A. Pérez-Bosque^{1,2}, M. Maijó¹, L. Miró¹, J. Polo², L. Russell³, J. Campbell³, E. Weaver³, J. Crenshaw³, and M. Moretó*¹, ¹*Universitat de Barcelona, Barcelona, Spain*, ²*APC Europe, Granollers, Barcelona, Spain*, ³*APC Inc., Ankeny, IA.*
- TH9 Endophyte infected fescue seed causes vasoconstriction in horses as measured by Doppler ultrasonography. E. S. Moore*, A. G. Parks, L. M. Lawrence, and K. J. McDowell, *University of Kentucky, Lexington.*
- TH10 Survey of *Clostridium perfringens* Type A prevalence and genotypes in calves and *in vitro* development of Omni-Bos CB™, a calf specific, *Bacillus*-based direct fed microbial. C. Wehnes*, V. Patskevich, K. Mertz, and T. G. Rehberger, *Agtech Products Inc., Waukesha, WI.*
- TH11 The effects of feeding tall fescue seed on daily feed intakes of horses. A. G. Parks* and L. M. Lawrence, *University of Kentucky, Lexington.*
- TH12 Hemodynamics in the caudal artery of beef heifers fed different ergot alkaloid concentrations. G. E. Aiken*¹, J. R. Strickland¹, M. L. Looper², and F. N. Schrick³, ¹*USDA-ARS-Forage-Animal Production Research Unit, Lexington, KY*, ²*USDA-ARS-Dale Bumpers Small Farms Research Center, Booneville, AR*, ³*University of Tennessee, Knoxville.*
- TH13 Analysis of locomotion scores with altered periparturient management. S. Eicher*¹, M. M. Schutz², J. Townsend², K. Daniels², S. Donkin², and A. Parkhurst³, ¹*USDA-ARS, West Lafayette, IN*, ²*Purdue University, West Lafayette, IN*, ³*University of Nebraska, Lincoln.*
- TH14 Experimental haemonchosis in resistant and susceptible Creole kids. J. C. Bambou*, E. González-García, C. de la Chevrotière, R. Arquet, N. Vachiéry, and N. Mandonet, *INRA UR143 Unité de Recherches Zootechniques (URZ), Centre Antilles Guyane, Domain Duclos, 97170 Petit Bourg, Guadeloupe (French West Indies).*
- TH15 JDIP – Phase II. K. E. Olson*, *KEO Consulting, Schaumburg, IL.*

Contemporary and Emerging Issues Exhibit Hall CDE

- TH16 Best practices for the conduct of animal studies to evaluate crops genetically modified for input and output traits. G. L. Cromwell*, G. F. Hartnell, A. J. Lewis, G. R. Dana, D. H. Baker, M. R. Bedford, K. C. Klasing, F. N. Owens, J. Wiseman, L. K. Kurtyka, and M. J. Levine, *International Life Sciences Institute and Federation of Animal Science Societies, Washington, DC, and Savoy, IL.*
- TH17 Animal biotechnology: The movie. A. L. Van Eenennaam* and W. E. Pohlmeier, *University of California, Davis.*

Dairy Foods Dairy Products and Processing I Exhibit Hall CDE

- TH18 Stability of a long life drinking yoghurt. M. M. Macchione and W. H. Viotto*, *State University of Campinas, Campinas, SP, Brazil.*
- TH19 Thrity-four percent whey (WPC) and serum protein (SPC) concentrate and 65% serum protein (SP) reduced micellar casein: Production and composition. J. Zulewska¹, D. M. Barbano², M. W. Newbold², M. A. Drake³, E. A. Foegeding³, and C. Moraru², ¹University of Warmia and Mazury, Olsztyn, Poland, ²Cornell University, Ithaca, NY, ³North Carolina State University, Raleigh.
- TH20 Comparison of sensory and functional properties of 34% serum (SPC) and 34% whey protein concentrates (WPC). J. P. Evans¹, P. J. Luck¹, E. A. Foegeding¹, J. Zulewska³, D. M. Barbano², and M. A. Drake¹, ¹North Carolina State University, Raleigh, ²Cornell University, Ithaca, NY, ³University of Warmia and Mazury, Olsztyn, Poland.
- TH21 The effect of crosslinked β -cyclodextrin treatment on the rheological and sensory properties of ice cream. H. J. Ha* and H. S. Kwak, *Sejong University, Seoul, Korea.*
- TH22 Rapid determination of emulsifier and stabilizer concentration in ice cream. S. L. Cropper*, N. A. Kocaoglu-Vurma, L. E. Rodriguez-Saona, and W. J. Harper, *The Ohio State University, Columbus.*
- TH23 Addition of rice extract improves the quality characteristics and consumer acceptability of banana flavored yogurt. T. Bor*, D. Song, C. W. Seo, and S. A. Ibrahim, *North Carolina A&T State University, Greensboro.*
- TH24 Functional properties of 65% serum protein reduced micellar casein concentrates obtained by microfiltration. C. M. Belicium¹, J. Zulewska², M. Newbold¹, C. I. Moraru¹, and D. M. Barbano¹, ¹Cornel University, Ithaca, NY, ²University of Warmia and Mazury, Olsztyn, Poland.
- TH25 Surface hydrophobicity of co-extruded and milled corn starch with whey protein concentrate as a function of pH. S. L. Amaya-Llano^{1,2}, E. Castano-Tostado², F. Martinez-Bustos¹, and L. Ozimek³, ¹Ciencia de Materiales, CINVESTAV Queretaro, Queretaro, Queretaro, Mexico, ²PROPAC, Universidad Autonoma de Queretaro, Queretaro, Queretaro, Mexico, ³University of Alberta, Edmonton, AB, Canada.
- TH26 Effect of ultrasound treatment on microbial load in milk. S. Gokavi, T. Silk, and M. Guo*, *University of Vermont, Burlington.*
- TH27 Effects of high pressure homogenization on milk. C. A. Boeneke*, A. Pastorek, and K. J. Aryana, *Louisiana State University Agricultural Center, Baton Rouge.*
- TH28 Classification of cream butter by infrared spectroscopy and multivariate analysis. S. Herringshaw*, N. Kocaoglu-Vurma, and L. Rodriguez-Saona, *The Ohio State University, Columbus.*
- TH29 Effect of various antioxidants on the characteristics of plain yogurt. B. Brignac¹ and K. Aryana², ¹Louisiana State University, Baton Rouge, ²Louisiana State University Agricultural Center, Baton Rouge.
- TH30 Effect of stabilizer and emulsifier concentrations on particle size and melting rate of ice cream. S. L. Cropper*, N. A. Kocaoglu-Vurma, and W. J. Harper, *The Ohio State University, Columbus.*
- TH31 Fluctuation on composition and insoluble aggregates in a whey protein concentrate (WPC) manufacturing line: Implications for quality and function. M. Costa^{2,1}, M. Gigante², P. Tong¹, and R. Jimenez-Flores¹, ¹California Polytechnic State University, San Luis Obispo, ²UNICAMP, Campinas-Sao Paulo, Brazil.
- TH32 Influence of pulsed electric field processing on protease activity of *Lactobacillus acidophilus* LA-K in skim milk. O. Cueva¹ and K. Aryana², ¹Louisiana State University, Baton Rouge, ²Louisiana State University Agricultural Center, Baton Rouge.
- TH33 Production of native whey from whole milk. I. Jarto¹, J. A. Lucey¹, D. Zhu¹, and K. E. Smith², ¹University of Wisconsin, Madison, ²Wisconsin Center for Dairy Research, Madison, WI.
- TH34 Flavor assessments of heated sweet cream butter. E. L. Harvey*, A. M. Renaud, and S. A. Rankin, *University of Wisconsin, Madison.*

Forages and Pastures III

Exhibit Hall CDE

- TH35 Grazing management effects on physical and nutritional characteristics of pastures. M. Haan, J. Russell*, and D. Morrical, *Iowa State University, Ames.*
- TH36 Grazing management effects on selected stream bank characteristics and erosion. M. Haan¹, J. Russell*¹, and J. Kovar², ¹*Iowa State University, Ames,* ²*USDA-ARS, Ames, IA.*
- TH37 Ingestive behavior of dairy cattle during the different grazing down process of palisadegrass subjected to rotational stocking. A. C. Ruggieri*¹, E. R. Januszkiewicz¹, D. R. Casagrande^{1,2}, A. G. Pascoa¹, R. A. Reis^{1,3}, and M. J. R. Paranhos da Costa^{1,3}, ¹*São Paulo State University, Jaboticabal, São Paulo, Brazil,* ²*Fundação de Amparo a Pesquisa do Estado de São Paulo, São Paulo, Brazil,* ³*Conselho Nacional de Desenvolvimento Científico Tecnológico, Brasília, Distrito Federal, Brazil.*
- TH38 Behavior of steers grazing novel endophyte tall fescues in southern Arkansas. B. Stewart*¹, P. Beck¹, D. Singh², and S. Gunter¹, ¹*University of Arkansas, Hope, AR,* ²*Barenbrug USA, Tangent, OR.*
- TH39 Giving beef calves a choice of pasture-type influences behavior and weight gain. H. T. Boland*¹, G. Scaglia², and W. S. Swecker Jr.³, ¹*Virginia Polytechnic Institute and State University, Blacksburg,* ²*Iberia Research Station, LSU Agricultural Center, Jeanerette, LA,* ³*Virginia-Maryland Regional College of Veterinary Medicine, Blacksburg, VA.*
- TH40 Tall fescue based forage systems supplemented with winter annuals for stocker cattle. B. T. Campbell*¹, A. E. Fisher¹, G. E. Bates¹, J. C. Riggins², F. N. Schrick¹, and J. C. Waller¹, ¹*University of Tennessee, Knoxville,* ²*University of Tennessee, Springfield.*
- TH41 Efficacy of EndoFighter™ for steers grazing endophyte-infected tall fescue pastures during summer. R. Norman*¹, C. D. Lane Jr.¹, S. S. Block², A. E. Fisher¹, B. T. Campbell¹, F. N. Schrick¹, and J. C. Waller¹, ¹*University of Tennessee, Knoxville,* ²*ADM Animal Nutrition Research, Decatur, IL.*
- TH42 Two year study on finishing beef cattle performance and forage characteristics of ryegrass (*Lolium perenne*), rye (*Secale cereale*) and oats (*Avena sativa*). A. C. Pereira*, E. J. Bungenstab, J. C. Lin, B. Gamble, S. P. Schmidt, C. R. Kerth, and R. B. Muntifering, *Auburn University, Auburn, AL.*
- TH43 Effect of forage species during finishing on growth rate, final weight and carcass parameters from pasture finished cattle. J. P. S. Neel*¹, J. P. Fontenot², W. M. Clapham¹, S. K. Duckett³, E. E. D. Felton⁴, and W. S. Swecker Jr.², ¹*USDA-ARS-AFSRC, Beaver, WV,* ²*Virginia Polytechnic Institute and State University, Blacksburg,* ³*Clemson University, Clemson, SC,* ⁴*West Virginia University, Morgantown.*
- TH44 Performance and carcass characteristics of the supplemented or not beef heifers grazing palisade grass (*Brachiaria brizantha*) on the rainy season. D. R. Casagrande^{1,2}, R. A. Reis*^{1,3}, A. C. Ruggieri¹, T. T. Berchielli^{1,3}, M. H. Moretti^{1,2}, J. F. de Mattos^{1,2}, and M. A. A. Balsalobre⁴, ¹*São Paulo State University, Jaboticabal, São Paulo, Brazil,* ²*Fundação de Amparo Pesquisa do Estado de São Paulo, São Paulo, São Paulo, Brazil,* ³*Conselho Nacional de Desenvolvimento Científico e Tecnológico, Brasília, Distrito Federal, Brazil,* ⁴*Bellman Nutrição Animal, Mirassol, São Paulo, Brazil.*
- TH45 Productivity, utilization and nutritive quality of dallisgrass (*Paspalum dilatatum*) as influenced by stocking density under continuous or rotational grazing. E. J. Bungenstab*, A. C. Pereira, J. C. Lin, J. L. Holliman, and R. B. Muntifering, *Auburn University, Auburn, AL.*
- TH46 Supplementation with different levels and sources of energy for steers on *Panicum maximum* jacq cv Tanzânia pasture: forage availability, morphological composition and nutritive value. M. C. Ar. Santana*¹, V. P. B. Euclides², and A. B. Mancio³, ¹*Universidade Estadual Paulista, Jaboticabal, São Paulo, Brazil,* ²*Empresa Brasileira de Pesquisa Agropecuária - Embrapa, Campo Grande, Mato Grosso do Sul, Brazil,* ³*Universidade Federal de Viçosa, Viçosa, Minas Gerais, Brazil.*
- TH47 Monensin and *Saccharomyces cerevisiae* as additive for beef heifers grazing *Brachiaria brizantha* cv. Marandu. L. M. Abaker Bertipaglia^{1,3}, G. M. Peruca de Melo¹, A. Prates e Oliveira^{1,3}, R. Andrade Reis*^{1,2}, T. T. Berchielli^{1,2}, A. S. Ferraudo^{1,2}, E. Braga Malheiros^{1,2}, and L. Abaker Bertipaglia¹, ¹*São Paulo State University, Jaboticabal, São Paulo, Brazil,* ²*Conselho Nacional de Desenvolvimento e Tecnológico, Brasília, Distrito Federal, Brazil,* ³*Coordenação de Aperfeiçoamento de Pessoal de Nível Superior, Brasília, Distrito Federal, Brazil,* ⁴*Fundação de Amparo à Pesquisa do Estado de São Paulo, São Paulo, São Paulo, Brazil.*
- TH48 Effects of rumen degradable protein supplementation on forage intake and digestibility of early weaned beef calves consuming stargrass hay and receiving soybean hull supplementation. T. Saraiva¹, J. M. B. Vendramini*¹, L. E. Sollenberger², U. Inyang¹, R. Farias¹, and J. D. Arthington¹, ¹*University of Florida, Ona,* ²*University of Florida, Gainesville.*
- TH49 Effect of urea inclusion and cooking time on intake of blocks containing greasy cottonseed meal by beef cows. T. A. Wickersham*¹, F. M. Rouquette², J. E. Sawyer¹, and R. O. Dittmar III¹, ¹*Texas A&M University, College Station,* ²*Texas AgriLife Research, Overton, TX.*
- TH50 Effects of three levels of rumen degradable protein supplementation on performance of early weaned calves grazing stargrass and receiving soybean hulls. T. Saraiva¹, J. M. B. Vendramini*¹, L. E. Sollenberger², U. Inyang¹, R. Farias¹, and J. D. Arthington¹, ¹*University of Florida, Ona,* ²*University of Florida, Gainesville.*
- TH51 Comparing mathematical models to estimate *in vitro* gas production kinetic parameters of the forage consumed by grazing cattle. M. Murillo-Ortiz, M. A. Cerrillo-Soto*, E. Herrera-Torres, O. Reyes-Estrada, A. Juárez-Reyes, G. Nevárez-Carrasco, and E. Ávila-Rodríguez, *Universidad Juárez del Estado de Durango, Durango, Dgo. México.*

- TH52 Comparison of techniques for estimation of forage dry matter intake by cattle grazing grass pastures. M. Undi*, K. H. Ominski, C. Wilson, and K. M. Wittenberg, *University of Manitoba, Winnipeg, Manitoba, Canada.*
- TH53 An alternative method to assess 24h ruminal *in vitro* neutral detergent fiber digestibility. J. P. Goeser*, P. C. Hoffman, and D. K. Combs, *University of Wisconsin, Madison.*
- TH54 Improvement of the rumen fluid priming method for measuring *in vitro* NDF digestibility. J. P. Goeser*, P. C. Hoffman, and D. K. Combs, *University of Wisconsin, Madison.*
- TH55 Comparison of means and run to run variation of *in vitro* NDFD between two labs using different *in vitro* NDFD methods. J. P. Goeser*, L. M. Bauman, P. C. Hoffman, and D. K. Combs, *University of Wisconsin, Madison.*
- TH56 Amount of sample NDF affects estimates of *in vitro* NDF digestibility. J. P. Goeser*, P. C. Hoffman, and D. K. Combs, *University of Wisconsin, Madison.*
- TH57 Measures of acid detergent lignin recovery and evaluations of the 2.4 time lignin factor for estimating indigestible NDF. E. Raffrenato*, M. E. Van Amburgh, and P. J. Van Soest, *Cornell University, Ithaca, NY.*

Growth and Development Nonruminant Species Exhibit Hall CDE

- TH58 Supplementation of arginine plus conjugated linoleic acid decreases the fat/lean mass ratio in rats. J. Nall*¹, G. Wu¹, K. H. Kim², S. B. Smith¹, and L. A. Ford¹, ¹Texas A&M University, College Station, ²National Institute of Animal Science, Suwon, Korea.
- TH59 Developmental regulation of delta-like protein 1 (DLK1) expression during chicken muscle development and regeneration. J. Shin*, D. Bae, J. A. DeIuliis, S. G. Velleman, S. Lim, J. D. Latshaw, M. P. Wick, and K. Lee, *The Ohio State University, Columbus.*
- TH60 Serum amyloid A protein mediates the regulation of docosahexaenoic acid on the expression of porcine genes related to lipid metabolism. S. T. Ding*, C. H. Chen, and H. J. Mersmann, *Natioanl Taiwan University, Taipei, Taiwan, ROC.*
- TH61 Exocrine pancreatic insufficiency arrests growth of young pigs even after the parenteral or enteral feeding of an elemental diet. S. Rengman*¹, O. Fedkiv¹, J. Botermans², J. Svendsen², B. R. Weström¹, and S. G. Pierzynowski¹, ¹Lund University, Lund, Sweden, ²Swedish University of Agricultural Sciences, Alnarp, Sweden.
- TH62 Indispensability of exocrine pancreatic function for the growth of young weaner pigs. O. Fedkiv*, S. Rengman, B. R. Weström, and S. G. Pierzynowski, *Lund University, Lund, Sweden.*
- TH63 Effects of maternal low and high protein diets on body composition and skeletal muscle properties of newborn piglets. C. Rehfeldt, C. Kalbe, J. Block, G. Nuernberg, B. Stabenow, D. Loesel*, and C. C. Metges, *Research Institute for the Biology of Farm Animals, Dummerstorf, Germany.*
- TH64 Body composition of transgenic pigs expressing the myostatin pro domain. A. D. Mitchell* and R. J. Wall, *USDA-ARS, Animal Bioscience and Biotechnology Laboratory, Beltsville, MD.*

Growth and Development Ruminant Species Exhibit Hall CDE

- TH65 Characterization of putative mammary stem cells in intact and ovariectomized prepubertal heifers. N. Korn¹, L. Riggs², R. M. Akers³, and S. Ellis*¹, ¹Clemson University, Clemson, SC, ²Louisiana State University, Baton Rouge, ³Virginia Polytechnic Institute and State University, Blacksburg.
- TH66 Cloning the promoter region for bovine phosphoenolpyruvate carboxykinase gene and identification of propionate responsive region. S. L. Koser*, M. Thomas, and S. S. Donkin, *Purdue University, West Lafayette, IN.*
- TH67 Quantification of glucose-6-phosphatase mRNA abundance in liver of transition dairy cows. E. M. Cedeño*, S. L. Koser, and S. S. Donkin, *Purdue University, West Lafayette, IN.*
- TH68 Plasma and tissue concentrations of glucose, acetate, propionate, lactate, and hydroxybutyrate in calves subjected to conventional and accelerated milk replacer programs. H. A. Weeks*, A. G. Rius, K. M. Daniels, R. M. Akers, C. Umberger, and M. D. Hanigan, *Virginia Polytechnic Institute and State University, Blacksburg.*

- TH69 Effect of β -mannanase enzyme mixture addition to soy-containing milk replacers on growth and health of neonatal calves. M. E. Van Amburgh*¹, L. Nabte-Solis¹, E. B. Helmes², D. A. Ross¹, and T. D. Sonnenberg¹, ¹Cornell University, Ithaca, NY, ²ChemGen, Gaithersburg, MD.
- TH70 Effects of *Bacillus subtilis* natto on performance and morphological features of ruminal papillae in dairy calves. H. T. Zhang, J. Q. Wang*, D. P. Bu, S. Y. Luan, L. F. Deng, L. Y. Zhou, H. Y. Wei, and K. L. Liu, *Chinese Academy of Agricultural Sciences, Beijing, China.*
- TH71 Increasing levels of dietary corn oil to grazing steers alters lipogenic gene expression. S. K. Duckett*¹, S. L. Pratt¹, and E. Pavan², ¹Clemson University, Clemson, SC, ²INTA, Balcarce, Argentina.
- TH72 Lipogenic gene expression in steers finished on high concentrate diets and pasture with or without energy supplementation. S. K. Duckett*¹, S. L. Pratt¹, and E. Pavan², ¹Clemson University, Clemson, SC, ²INTA, Balcarce, Argentina.
- TH73 Melengestrol acetate enhances adipogenic gene expression in an *in vitro* muscle-derived cell transdifferentiation model. K. Y. Chung* and B. J. Johnson, *Kansas State University, Manhattan.*
- TH74 More selenium (Se) accumulates in whole blood, red blood cells, and liver of beef heifers when supplemented by an organic vs inorganic source. S. F. Liao*, W. R. Burris, K. R. Brown, J. A. Boling, and J. C. Matthews, *University of Kentucky, Lexington.*
- TH75 Basal content of sugar transporter mRNA in small intestinal epithelia of beef steers is differentially increased by abomasal vs ruminal infusion of starch hydrolysate. S. F. Liao*, D. L. Harmon, E. S. Vanzant, K. R. McLeod, J. A. Boling, and J. C. Matthews, *University of Kentucky, Lexington.*
- TH76 Roles of increased IGF-I expression and the estrogen 17 β , androgen and IGF-I receptors in estradiol-17 β and trenbolone acetate-stimulated proliferation of cultured bovine satellite cells. E. Kamanga-Sollo¹, M. E. White¹, M. R. Hathaway¹, K. Y. Chung², B. J. Johnson², and W. R. Dayton*¹, ¹University of Minnesota, St. Paul, ²Kansas State University, Manhattan.
- TH77 Effects of trenbolone acetate (TBA), Estradiol (E2) and combined TBA/E2 implants on muscle IGF-I and IGF-II mRNA levels in feedlot steers. M. S. Pampusch¹, M. E. White¹, M. R. Hathaway*¹, K. Y. Chung², B. J. Johnson², and W. R. Dayton¹, ¹University of Minnesota, St. Paul, ²Kansas State University, Manhattan.
- TH78 Effects of androgen and estrogen (E2) receptor blockers and E2-conjugated BSA on estrogen and trenbolone acetate-stimulated IGF-I expression in cultured bovine satellite cells. E. Kamanga-Sollo¹, M. E. White*¹, M. R. Hathaway¹, K. Y. Chung², B. J. Johnson², and W. R. Dayton¹, ¹University of Minnesota, St. Paul, ²Kansas State University, Manhattan.
- TH79 Proglucagon and GLP-2 receptor mRNA distribution in the ruminant gastrointestinal tract. C. C. Taylor-Edwards*, D. B. Edwards, M. J. Doig, E. S. Vanzant, K. R. McLeod, J. A. Boling, J. C. Matthews, and D. L. Harmon, *University of Kentucky, Lexington.*
- TH80 Effects of overfeeding adolescent ewe lambs on progeny growth. G. J. Eckerle*, R. V. Anthony, and R. K. Peel, *Colorado State University, Fort Collins.*
- TH81 Biological efficiency of crossbred beef cattle finished on feedlot and slaughtered with distinct body weights. R. Mello*^{1,3}, M. H. de Faria², A. C. de Queiroz³, F. D. de Resende², D. S. Henrique³, and F. Maldonado², ¹Universidade Federal de Roraima, Boa Vista, RR, Brazil, ²APTA, Colina, SP, Brazil, ³Universidade Federal de Viçosa, Viçosa, MG, Brazil.
- TH82 Estimation of carcass and empty body chemical composition of Nellore and Caracu breeds. S. F. M. Bonilha*¹, L. O. Tedeschi², I. U. Packer³, A. G. Razook¹, L. A. Figueiredo¹, R. F. Nardon⁴, and G. F. Alleoni⁴, ¹Instituto de Zootecnia, Agência Paulista de Tecnologia dos Agronegócios, Sertãozinho, SP, Brazil, ²Texas A&M University, College Station, ³Universidade de São Paulo/ESALQ, Piracicaba, SP, Brazil, ⁴Instituto de Zootecnia, Agência Paulista de Tecnologia dos Agronegócios, Nova Odessa, SP, Brazil.

Horse Species Exhibit Hall CDE

- TH83 Temporal variables of the Arabian and Morgan Western Pleasure Jog. M. Nicodemus* and A. Luckett, *Mississippi State University, Mississippi State.*
- TH84 Use of chicken vs. chukar (*Alectoris chukar*) egg yolk as components of freezing media for stallion semen. S. E. Harmon and G. W. Webb*, *Missouri State University, Springfield.*
- TH85 Nutrient composition and selection preferences of forages by feral horses: The horses of Shackleford Banks, North Carolina. S. J. Stuska¹, S. E. Pratt*², H. L. Beveridge², and M. J. Yoder², ¹Cape Lookout National Seashore, Harkers Island, NC, ²North Carolina State University, Raleigh.
- TH86 Estimation of body weight in ponies. G. S. Owen*¹, E. L. Wagner¹, and W. S. Eller², ¹Auburn University, Auburn, AL, ²Louisiana State University, Baton Rouge.
- TH87 Basal insulin and glucose concentrations in horses of North Carolina. K. M. Owens*, S. E. Pratt, L. E. Dowler, and M. T. Cloninger, *North Carolina State University, Raleigh.*

- TH88 Equine identification in the Amish community: An overview of a survey conducted in Pennsylvania. A. Swinker*, K. Vanderman, H. McKernan, A. Graeff, and B. Gill, *The Pennsylvania State University, University Park*.
- TH89 Equine show and event manager survey of resistance to the implementation of national equine identification. A. Swinker*, K. Vanderman, A. Graeff, K. Vines, and B. Gill, *The Pennsylvania State University, University Park*.
- TH90 United States equine owner's survey on the implementation of national equine identification. K. Vanderman*, A. Swinker, H. McKernan, B. Gill, and R. Radhakrishna, *The Pennsylvania State University, University Park*.
- TH91 Equine veterinarians and health care professionals survey of resistance to the implementation of national equine identification. N. Dreschel*, K. Vanderman, A. Swinker, E. Jedrzejewski, and J. Werner, *The Pennsylvania State University, University Park*.
- TH92 Application of forensic science technique to the management of an endangered horse population. E. Bömcke*^{1,2} and N. Gengler^{1,3}, ¹*Gembloux Agricultural University, Gembloux, Belgium*, ²*FRIA, Brussels, Belgium*, ³*FNRS, Brussels, Belgium*.
- TH93 Sites of active nutrient absorption in the equine gastrointestinal tract. B. E. Aldridge*, T. B. Lescun, and J. S. Radcliffe, *Purdue University, West Lafayette, IN*.
- TH94 Genistein reduces LPS stimulated TNF α release from equine monocytes. A. R. Taylor* and J. A. Clapper, *South Dakota State University, Brookings*.
- TH95 Effect of exercise and superoxide dismutase on systemic antioxidants and nitric oxide in horses. E. D. Lamprecht*, C. A. Bagnell, and C. A. Williams, *Rutgers, The State University of New Jersey, New Brunswick*.
- TH96 Evaluation of plasma alpha-tocopherol daily within-horse variation. P. D. Siciliano*, L. E. Dowler, and S. E. Pratt, *North Carolina State University, Raleigh*.
- TH97 Effect of selenium supplementation and dietary energy manipulation on mares and their foals: Foaling parameters and foal physical characteristics. B. J. Karren*¹, J. F. Thorson², C. A. Cavinder¹, C. J. Hammer², and J. A. Coverdale¹, ¹*Texas A&M University, College Station*, ²*North Dakota State University, Fargo*.
- TH98 Effect of selenium supplementation and dietary energy manipulation on mares and their foals: Placental dynamics. J. F. Thorson*¹, B. J. Karren², M. L. Bauer¹, C. A. Cavinder², J. A. Coverdale², and C. J. Hammer¹, ¹*North Dakota State University, Fargo*, ²*Texas A&M University, College Station*.
- TH99 Digestible energy requirements of two and three year old fillies receiving light exercise. J. E. Ringler*, B. D. Cassill, K. C. Watson, S. Hayes, and L. M. Lawrence, *University of Kentucky, Lexington*.

International Animal Agriculture Exhibit Hall CDE

- TH100 A model of personal preparation for the international agricultural teaching and extension program between the United States and China. J. Peng*, *Purdue University, West Lafayette, IN*.
- TH101 Energy and financial analysis of the conversion of a conventional beef cattle production system to an organic beef foodchain in Veracruz, Mexico. P. Fajersson*¹, G. Alvarado¹, G. Benítez¹, I. J. González¹, J. Nieto¹, W. Sangabriel¹, and P. Parada², ¹*Colegio de Postgraduados, Campus Veracruz, Veracruz, Mexico*, ²*Carnes La Rumorosa, Poza Rica, Veracruz, Mexico*.
- TH102 A meta-analysis on effects of supplementing low quality roughages with tree foliages on intake and growth in sheep. A. K. Patra*, *West Bengal University of Animal and Fishery Sciences, Belgachia, Kolkata, India*.

Lactation Biology Exhibit Hall CDE

- TH103 Identification of internal controls for quantitative PCR in mammary tissue from lactating cows receiving various lipid supplements. A. K. G. Kadegowda*¹, M. Bionaz², B. Thering², L. S. Piperova¹, R. A. Erdman¹, and J. J. Loo², ¹*University of Maryland, College Park*, ²*University of Illinois, Urbana*.
- TH104 Gene network analysis in mammary tissue of lactating cows receiving abomasal infusions of butterfat, long-chain fatty acids, or CLA. A. K. G. Kadegowda*¹, L. S. Piperova¹, S. L. Rodriguez-Zas², R. E. Everts², H. A. Lewin², R. A. Erdman¹, and J. J. Loo², ¹*University of Maryland, College Park*, ²*University of Illinois, Urbana*.
- TH105 Differential expression of lipid transporters and their regulators during the lactation cycle in the bovine mammary gland. O. Mani¹, M. T. Sorensen², K. Sejrnsen², R. M. Bruckmaier*¹, and C. Albrecht¹, ¹*University of Bern, Switzerland*, ²*University of Aarhus, Denmark*.

- TH106 Unprotected conjugated linoleic acid (CLA) negatively affects milk production and secretion of milk components in dairy ewes. D. E. de Oliveira*¹, M. P. Soares¹, F. J. Bianchetti¹, R. Fornazier¹, M. R. Fachinello¹, M. Girardi¹, D. Fernandes¹, D. Soster¹, M. A. S. da Gama², M. G. C. D. Peixoto², S. de O. Juchem³, and L. O. Tedeschi⁴, ¹Universidade do Estado de Santa Catarina, Chapecó, SC, Brasil, ²Embrapa Gado de Leite, Juiz de Fora, MG, Brasil, ³University of California, Davis, ⁴Texas A&M University, College Station.
- TH107 Effects of rumen-protected choline administration on mRNA expressions of selected enzymes involved in mammary lipid metabolism. L. Pinotti*¹, F. D'Ambrosio¹, R. Bruckmaier², C. Albrecht², V. Dell'Orto¹, and A. Baldi¹, ¹University of Milan, Milan, Italy, ²University of Bern, Bern, Switzerland.
- TH108 Hormonal influence on mammary tissue composition in pre-pubertal Holstein heifers. B. P. Huderson*¹, B. T. Velayudhan¹, S. E. Ellis², and R. M. Akers¹, ¹Virginia Polytechnic Institute and State University, Blacksburg, ²Clemson University, Clemson, SC.
- TH109 Feeding genistein to prepubertal gilts stimulates their mammary development. C. Farmer*¹, S. Gilani², M.-F. Palin¹, H. Weiler³, M. Vignola⁴, R. K. Choudhary⁵, and A. V. Capuco⁵, ¹Agriculture and Agri-Food Canada, Dairy and Swine R & D Centre, Sherbrooke, QC, Canada, ²Nutrition Research Division, Health Canada, Ottawa, ON, Canada, ³McGill University, Ste-Anne-de-Bellevue, QC, Canada, ⁴Nutreco Canada Agresearch, St-Romuald, QC, Canada, ⁵USDA-ARS, Bovine Functional Genomics Lab, Beltsville, MD.
- TH110 Evidence that prolactin does not drive the milk yield response to frequent milking in early lactation. J. G. Titus*¹, H. M. Crawford², E. H. Wall¹, G. E. Dahl², and T. B. McFadden¹, ¹University of Vermont, Burlington, ²University of Illinois, Urbana.
- TH111 Reduced nursing frequency during prolonged lactation in the mouse decreases milk production and increases mammary expression of tryptophan hydroxylase 1 (TPH1), but does not accelerate mammary gland remodeling. D. L. Hadsell*¹, W. Olea¹, D. Torres¹, J. George¹, and R. J. Collier², ¹Baylor College of Medicine, Houston, TX, ²The University of Arizona, Tucson.
- TH112 Evaluation and classification of milking disorders in Swiss dairy cattle. C. J. Belo¹, S. Schlegel², J. Moll³, and R. M. Bruckmaier*¹, ¹University of Bern, Bern, Switzerland, ²Swiss Federal Institute of Technology Zurich, Zurich, Switzerland, ³Swiss Brown Cattle Breeders Federation, Zug and ASR, Bern, Switzerland.
- TH113 Prestimulation combined with a short waiting time before cluster attachment affects milk removal in dairy cows. S. Kaskous*¹ and R. M. Bruckmaier², ¹Damascus University, Damascus, Syria, ²University of Bern, Bern, Switzerland.
- TH114 Identification of internal controls for quantitative PCR in swine mammary gland during pregnancy and lactation. S. Tramontana^{1,2}, M. Bionaz*², A. Sharma², D. E. Graugnard², E. A. Cutler², P. Ajmone-Marsan¹, W. L. Hurley², and J. J. Loor², ¹Università Cattolica del Sacro Cuore, Piacenza, Italy, ²University of Illinois, Urbana.
- TH115 Serial mammary biopsies in cows do not alter overall milk production. H. Dover*¹, M. VandeHaar, J. Liesman, O. Patel, L. De Vries, and K. Plaut, Michigan State University, East Lansing.
- TH116 Effect of dry period length on calving related disorders. M. S. Gulay*¹, M. J. Hayen², K. C. Bachman², and H. H. Head², ¹Mehmet Akif Ersoy University, Faculty of Veterinary Medicine, Department of Physiology, Burdur, Turkey, ²University of Florida, Gainesville.
- TH117 Dietary energy management during pregnancy and its effects on transition health in dairy heifers. M. S. Laubach¹, D. B. Carlson², L. Mabasa², K. S. Cho², A. W. Fowler², and C. S. Park*², ¹South Dakota State University, Brookings, ²North Dakota State University, Fargo.
- TH118 Diet does not affect putative mammary epithelial stem cells in pre-weaned Holstein heifers. K. M. Daniels*¹, A. V. Capuco², R. E. James¹, M. L. McGilliard¹, and R. M. Akers¹, ¹Virginia Polytechnic Institute and State University, Blacksburg, ²USDA-Agricultural Research Service, Beltsville, MD.

**Nonruminant Nutrition
Mineral
Sponsor: Kemin Americas Inc.
Exhibit Hall CDE**

- TH119 Impact of massive doses of copper or zinc on growth performance and nutrient digestibility of newly weaned piglets. M. Pelletier-Grenier*¹, A. Giguere², and F. Guay¹, ¹Universite Laval, Quebec, QC, Canada, ²Agriculture and AgriFood Canada, Sherbrooke, QC, Canada.
- TH120 Effect of different Ca and P level on early growth of fast-growth lines of Wulong Goose. B. W. Wang*¹, M. A. Zhang, X. P. Wu, G. L. Liu, and X. H. Jia, Qingdao Nongye University, Qingdao, Shandong Province, China.
- TH121 Effects of dietary *Escherichia coli* phytase supplementation on growth performance, carcass quality and excretion of copper and zinc concentrations in finishing pigs. S. O. Shin*¹, Y. H. Kim², J. C. Park², H. J. Jung², H. G. Moon², S. Y. Ji², I. C. Kim², S. J. Lee², and I. H. Kim¹, ¹Dankook University, Cheonan, Chungnam, Korea, ²National Institute of Animal Science, RDA, Cheonan, Chungnam, Korea.

- TH122 Effects of rare earth supplementation on growth performance, blood immunological parameters, meat quality and fecal odor emission gases in finishing pigs. S. O. Shin^{*1}, J. H. Lee¹, H. D. Jang¹, Y. J. Chen¹, J. H. Cho¹, J. D. Hancock², K. Y. Whang³, and I. H. Kim¹, ¹Dankook University, Cheonan, Chungnam, Korea, ²Kansas State University, Manhattan, ³Korea University, Seoul, Korea.
- TH123 The effect of different copper (inorganic and organic) and fat (tallow and glycerol) sources on growth performance, nutrient digestibility, and fecal excretion profile in growing pigs (regional study). Y. Huang^{*1}, J. S. Yoo¹, H. J. Kim¹, Y. J. Chen¹, J. H. Cho¹, Y. K. Han², and I. H. Kim¹, ¹Dankook University, Cheonan, Chungnam, Korea, ²Sungkyunkwan University, Suwon, Korea.
- TH124 The effects of 200 ppb added chromium from chromium propionate on the growth performance and carcass characteristics of finishing pigs. J. R. Bergstrom^{*1}, M. D. Tokach¹, S. S. Dritz¹, J. L. Nelssen¹, R. D. Goodband¹, J. M. DeRouchey¹, J. D. Hahn², and F. R. Valdez², ¹Kansas State University, Manhattan, ²Kemin Industries Inc., Des Moines, IA.
- TH125 Evaluation of organic and inorganic trace minerals for pigs. Y. L. Ma^{*}, M. D. Lindemann, G. L. Cromwell, R. B. Cox, and G. Rentfrow, *University of Kentucky, Lexington.*
- TH126 Iron status evolution of weaned piglets fed different iron sources. P. Schlegel^{*1}, S. Durosoy¹, and M. Dupas², ¹Pancosma S.A., Geneva, Switzerland, ²IDENA, Sautron, France.
- TH127 Effects of sodium bisulfate on growth performance of weanling pigs. J. Jarrett^{*}, S. Carter, J. Bundy, M. Lachmann, and T. Walraven, *Oklahoma State University, Stillwater.*
- TH128 Effects of dietary inorganic sulfate levels on growth performance and markers of intestinal inflammation in growing pigs. T. E. Weber^{*1}, C. Spence², T. R. Whitehead², and B. J. Kerr¹, ¹USDA-ARS, Ames, IA, ²USDA-ARS, Peoria, IL.
- TH129 Differential expression of 15 selenoprotein genes in various tissues of pigs. H. Zhao¹, J. C. Zhou¹, X. Xia¹, K. N. Wang¹, J. G. Li¹, Y. Zhao¹, Y. Liu¹, and X. G. Lei^{*1,2}, ¹Sichuan Agricultural University, Ya'an, China, ²Cornell University, Ithaca, NY.
- TH130 Intestinal and renal Type II NaPi co-transporter gene expression patterns in growing pigs fed with different levels of dietary calcium. Y. Yin^{*}, S. X. Wang, T.-J. Li, R.-L. Huang, X.-F. Kong, P. Kang, Q. Hu, Z. Liu, and W. Wang, *The Chinese Academy of Sciences, Changsha, Hunan, P. R. China.*

Nonruminant Nutrition Protein and Amino Acids Exhibit Hall CDE

- TH131 Determination of the order of limiting amino acids in milk-based liquid diets for pigs from 1.5 to 5.5 kg. A. I. Broome¹, R. J. Harrell², J. Odle¹, K. E. Sullivan¹, and J. H. Eisemann^{*1}, ¹North Carolina State University, Raleigh, ²Novus International Incorporated, St. Louis, MO.
- TH132 Use of distillers dried grains with solubles and soybean hulls in nursery pig diets. F. F. Barbosa^{*}, S. S. Dritz, M. D. Tokach, J. M. DeRouchey, R. D. Goodband, and J. L. Nelssen, *Kansas State University, Manhattan.*
- TH133 Amino acid supplementation of hydrolyzed feather meal diets for finisher pigs: I. Growth performance and serum metabolite profile. K. C. Divakala^{*1}, L. I. Chiba¹, R. B. Kamalakar¹, S. P. Rodning¹, E. G. Welles¹, K. A. Cummins¹, J. Swann², F. Cespedes², and R. L. Payne³, ¹Auburn University, Auburn, AL, ²American Proteins Inc., Hanceville, AL, ³Evonik-Degussa Corp., Kennesaw, GA.
- TH134 Amino acid supplementation of hydrolyzed feather meal diets for finisher pigs: II. Carcass traits, meat quality, and internal organs. K. C. Divakala^{*1}, L. I. Chiba¹, R. B. Kamalakar¹, S. P. Rodning¹, E. G. Welles¹, K. A. Cummins¹, J. Swann², F. Cespedes², and R. L. Payne³, ¹Auburn University, Auburn, AL, ²American Proteins Inc., Hanceville, AL, ³Evonik-Degussa Corp., Kennesaw, GA.
- TH135 Effects of dietary crude protein level on concentrations of fecal volatile fatty acids, and fecal and urinary ammonia and volatile organic compounds in growing pigs. S. B. Cho^{*}, D. W. Kim, O. H. Hwang, C. W. Choi, W. T. Chung, J. H. Lee, I. B. Chung, and B. S. Lee, *National Institute of Animal Science, RDA, Suwon, Republic of Korea.*
- TH136 Feed preferences in nursery pigs fed diets containing varying fractions and qualities of dried distillers grains with solubles. B. S. Seabolt¹, E. van Heugten^{*1}, K. D. Ange-van Heugten¹, and E. Roura², ¹North Carolina State University, Raleigh, ²Lucta SA, Barcelona, Spain.
- TH137 Effect of dietary protein level on serum haptoglobin and pro-inflammatory cytokine concentrations in piglets challenged with *Escherichia coli* K88. F. O. Opapeju^{*1}, R. L. Payne², and C. M. Nyachoti¹, ¹University of Manitoba, Winnipeg, MB, Canada, ²Evonik-Degussa Corporation, Kennesaw, GA.
- TH138 Influence of micronization (fine grinding) of soy bean meal and fullfat soy bean on nutrient digestibility and digestive traits in young pigs. D. G. Valencia, M. P. Serrano, R. Lázaro, M. A. Latorre, and G. G. Mateos^{*}, *Universidad Politécnica de Madrid, Spain.*
- TH139 Effects of including field peas in diets fed to weanling pigs. H. H. Stein^{*1} and D. N. Peters², ¹University of Illinois, Urbana, ²South Dakota State University, Brookings.

- TH140 Effects of dietary pine cone meal on egg production, egg quality, serum cholesterol and cholesterol content and fatty acid composition of egg yolk in laying hens. S. O. Shin^{*1}, J. H. Cho¹, Y. J. Chen¹, J. D. Kim², J. H. Lee³, K. W. Park³, and I. H. Kim¹, ¹Dankook University, Cheonan, Chungnam, Korea, ²CJ CheilJedang, Seoul, Korea, ³Korea National Arboretum, Pocheon, Gyeonggi, Korea.
- TH141 Effects of dietary pine cone meal on growth performance, serum cholesterol, carcass quality and fatty acid composition and cholesterol content of meat in broiler chickens. S. O. Shin^{*1}, J. H. Cho¹, J. D. Kim², J. H. Lee³, K. W. Park³, and I. H. Kim¹, ¹Dankook University, Cheonan, Chungnam, Korea, ²CJ CheilJedang, Seoul, Korea, ³Korea National Arboretum, Pocheon, Gyeonggi, Korea.
- TH142 Effects of dietary level of brewer's grain on growth performance and digestibility in growing pigs. J. S. Yoo^{*1}, J. D. Kim², K. Y. Whang³, H. J. Jung⁴, S. B. Cho⁴, H. B. Seok¹, and I. H. Kim¹, ¹Dankook University, Cheonan, Choongnam, Korea, ²CJ CheilJedang, Seoul, Korea, ³Korea University, Seoul, Korea, ⁴National Institute of Animal Science, Korea.
- TH143 Effect of bedding types and different crude protein levels on growth performance, visceral organ weight and blood characteristics in broiler chickens. Y. Huang^{*1}, J. S. Yoo¹, Y. J. Chen¹, J. H. Cho¹, J. D. Kim², J. D. Hancock³, and I. H. Kim¹, ¹Dankook University, Cheonan, Chungnam, Korea, ²CJ CheilJedang, Seoul, Korea, ³Kansas State University, Manhattan.
- TH144 Comparative efficacy of import fish meals and fermented (*L. acidophilus* GB-LC2) fish meal on growth performance, protein cells concentrations in serum, nutrient digestibility in weanling pigs. J. H. Cho^{*1}, Y. J. Chen¹, J. S. Yoo¹, I. B. Chung², J. H. Ahn², and I. H. Kim¹, ¹Dankook University, Cheonan, Chungnam, Korea, ²National Institute of Animal Science, RDA, Korea.
- TH145 Effect of deoiled corn dried distillers grains with solubles, solvent extracted on nursery pig growth performance. J. Y. Jacela^{*1}, L. Brandts², J. M. DeRouche¹, S. S. Dritz¹, M. D. Tokach¹, R. D. Goodband¹, J. L. Nelssen¹, R. C. Thaler², D. Peters², and D. E. Little³, ¹Kansas State University, Manhattan, ²South Dakota State University, Brookings, ³DairyNet Inc., Brookings, SD.
- TH146 Evaluation of distillers dried grains with solubles (DDGS) and Allzyme[®] SSF in grow-finish pigs. J. Pierce^{*} and J. Bannerman, *Alltech Inc., Nicholasville, KY.*
- TH147 Comparison of finishing pigs performance when diets containing DL-methionine and cull chickpeas in substitution of soybean meal and corn. J. M. Uriarte^{*}, J. F. Obregón, H. R. Guemez, F. G. Rios, and O. S. Acuña, *Universidad Autónoma de Sinaloa, Culiacán, Sinaloa, México.*
- TH148 Carcass traits of pigs fed with cull chickpeas with added DL-methionine. J. M. Uriarte^{*}, J. F. Obregón, H. R. Guemez, F. G. Rios, O. S. Acuña, and A. R. Cortina, *Universidad Autónoma de Sinaloa, Culiacán, Sinaloa, México.*
- TH149 Comparison of chromic oxide and acid insoluble ash as digestibility markers in the determination of apparent total tract digestibility in finishing pigs. V. D. Naranjo^{*}, S. Powell, T. D. Bidner, and L. L. Southern, *LSU Agricultural Center, Baton Rouge.*
- TH150 Effects of dried distillers grains and Gromega365[™] on sow bratwurst quality. H. White^{*1}, K. Hesselbrock¹, N. Augspurger², J. Spencer², A. Schinckel¹, and M. Latour¹, ¹Purdue University, West Lafayette, IN, ²JBS United, Sheridan, IN.
- TH151 The effects of extrusion and inclusion of dried distillers grains on nitrogen retention in swine. A. Dietz^{*1}, R. L. Atkinson¹, P. Walker², and G. Apgar¹, ¹Southern Illinois University, Carbondale, ²Illinois State University, Normal.
- TH152 L-Tryptophan dietary supplementation stimulated an earlier feed intake and reduced the physical activity of early weaned piglets. M. Anguita¹, R. G. Hermes^{*1}, J. Gasa¹, D. Melchior², and J. F. Pérez¹, ¹Universitat Autònoma de Barcelona, Bellaterra, Barcelona, Spain, ²Ajinomoto Eurolysine S.A.S., Paris, France.
- TH153 Lysine restriction and realimentation affected growth, blood metabolites, and myostatin and leptin expressions in weaned pigs. Y. X. Yang¹, J. Guo², Z. Jin¹, S. Y. Yoon¹, J. Y. Choi¹, M. H. Wang², X. S. Piao³, S. J. Ohh¹, B. W. Kim¹, and B. J. Chae^{*1}, ¹College of Animal Life Sciences, Chuncheon, Kangwon-Do, Republic of Korea, ²School of Biotechnology, Chuncheon, Kangwon-Do, Republic of Korea, ³National Key Lab of Animal Nutrition, China Agricultural University, Beijing, P. R. China.
- TH154 Impaired translation initiation activation and reduced protein synthesis in weaned piglets fed a low-protein diet supplemented with essential amino acids. Y. Yin^{*1}, D. Deng¹, W. Chua¹, K. Yao¹, T. Li¹, R. Huang¹, Z. Liu¹, and G. Wu², ¹The Chinese Academy of Sciences, Changsha, Hunan, P. R. China, ²Texas A&M University, College Station.
- TH155 Effects of dietary protein level on intramuscular fat content and its fatty acid composition in lean and obese genotype finishing pigs. H.-J. Xu^{1,2}, Y.-L. Liu³, W.-T. Gu¹, Y.-L. Yin^{*1}, X.-F. Kong¹, R.-L. Huang¹, W.-J. Tang¹, and Z.-Q. Liu¹, ¹The Chinese Academy of Sciences, Changsha, Hunan, P.R. China, ²West Anhui University, Luan, Anhui, China, ³Wu Han Polytechnic University, Wuhan Hubei, China.
- TH156 Dietary protein intakes affect expression of the cationic amino acid transporter-1 gene in the small intestine of finishing pigs. C. Y. Shi^{1,2}, W. Y. Chu², T. J. Li², M. M. Geng², R. L. Huang², S.-Y. Bin¹, and Y.-L. Yin^{*2}, ¹Guangxi Normal University, Guilin, Guangxi, China, ²The Chinese Academy of Sciences, Changsha, Hunan, P. R. China.
- TH157 Molecular cloning, distribution and expression of the amino acid transporter y+LAT1 gene in tissues of young Tibet pigs. W. T. Gu¹, W. Y. Chu¹, W. C. Wang¹, M. M. Geng¹, T. J. Li¹, Y. L. Yin^{*1}, and G. Y. Wu^{1,2}, ¹The Chinese Academy of Sciences, Changsha, Hunan, P. R. China, ²Texas A&M University, College Station.

- TH158 Molecular cloning, distribution and expression of the amino acid transporter b⁰,+ AT mRNAs in young Tibet pigs. W. Y. Chu¹, W. C. Wang¹, W. T. Gu¹, M. M. Gen¹, T. J. Li¹, Y. L. Yin^{*1}, and G. Y. Wu^{1,2}, ¹The Chinese Academy of Sciences, Changsha, Hunan, P. R. China, ²Texas A&M University, College Station.
- TH159 Digestibility and metabolism of nitrogen and energy in finishing Ningxiang pigs. W.-J. Tang, X.-F. Kong, Z.-Q. Liu, R.-L. Huang, T.-J. Li, and Y.-L. Yin*, *The Chinese Academy of Sciences, Changsha, Hunan, P. R. China.*
- TH160 Ontogenetic development and nutritional regulation of amino acid transporter EAAC1 in intestine of swine. X. Wu¹, C. Y. Xie², Y. L. Yin^{*1}, L. Wang³, W. Y. Chu¹, M. M. Geng¹, T. J. Li¹, R. L. Huang¹, and Y. Q. Hou³, ¹The Chinese Academy of Sciences, Changsha, Hunan, P. R. China, ²Huazhong Agricultural University, Wu Han, China, ³Wuhan Polytechnic University, WuHan, Hubei, China.

Physiology and Endocrinology
Physiology of Heat Stress
Exhibit Hall CDE

- TH161 Thermal and nutritional regulation of hepatic gluconeogenic genes in growing beef cattle. M. D. O'Brien*, L. C. Cole, J. B. Wheelock, S. R. Sanders, G. C. Duff, L. H. Baumgard, and R. P. Rhoads, *University of Arizona, Tucson.*
- TH162 Seasonal differences in gene expression in oocytes from Holstein cows in a subtropical environment as revealed by gene array analysis. P. J. Hansen^{*1}, M. Salem², A. M. Brad¹, J. Yao², and G. W. Smith³, ¹University of Florida, Gainesville, ²West Virginia University, Morgantown, ³Michigan State University, East Lansing.
- TH163 The effect of heat stress and exogenous bovine somatotropin on expression of genes associated with hepatic gluconeogenesis in lactating dairy cows. J. B. Wheelock*, A. J. LaNoce, M. D. O'Brien, S. R. Sanders, R. J. Collier, L. H. Baumgard, and R. P. Rhoads, *University of Arizona, Tucson.*
- TH164 Heat shock modulates adipokines secretion in 3T3-L1 adipocytes. U. Bernabucci*, L. Basirico, P. Morera, N. Lacetera, B. Ronchi, and A. Nardone, *Dipartimento di Produzioni Animali, Viterbo, Italy.*
- TH165 Effects of elevated ambient temperature on length of gestation and ruminal temperature at parturition of beef cows. E. C. Wright*, M. J. Prado-Cooper, C. L. Bailey, and R. P. Wettemann, *Oklahoma Agricultural Experiment Station, Stillwater, OK.*

Physiology and Endocrinology
Poultry and Swine Physiology
Exhibit Hall CDE

- TH166 Egg shape index in fertility and hatchability of Japanese quail. G. Contreras*, A. Silman, C. B. Castro, J. J. Portillo, and A. Estrada, *Universidad Autónoma de Sinaloa, Culiacán, Sinaloa, México.*
- TH167 Detection of microRNA in porcine somatic and reproductive tissues. S. L. Pratt*, E. Curry, and H. M. Barton, *Clemson University, Clemson, SC.*
- TH168 Endocrine regulation of colostrum production in primiparous sows. A. Foisnet¹, C. Farmer², M. Etienne¹, J. Le Dividich¹, and H. Quesnel^{*1}, ¹INRA, Saint Gilles, France, ²Agriculture and Agri-Food Canada, Sherbrooke, QC, Canada.
- TH169 Maintenance of pregnancy with Matrix[®] in PGF_{2α}-treated sows. C. E. Ferguson*, M. C. Poole, D. M. Gandy, and F. M. LeMieux, *McNeese State University, Lake Charles, LA.*
- TH170 Defined pattern of Sertoli cell differentiation in pubertal porcine testes. J. J. Ford* and T. H. Wise, *USDA/ARS/USMARC, Clay Center, NE.*
- TH171 Comparison of domestic and feral pig physiology, immunity and growth. B. L. Davis^{*1,2}, M. A. Sutherland^{1,2}, P. J. Bryer^{1,2}, J. F. Smith^{1,2}, and J. J. McGlone^{1,2}, ¹Pork Industry Institute, Lubbock, TX, ²Texas Tech University, Lubbock.

**Physiology and Endocrinology
Spermatozoa, In Vitro Fertilization, and Embryo Transfer
Exhibit Hall CDE**

- TH172 Identification of fertility markers in seminal plasma proteins of cryopreserved bull semen: A proteomic approach. J. F. Odhiambo*, L. Corum, S. Wolfe, E. E. Felton, and R. A. Dailey, *West Virginia University, Morgantown.*
- TH173 Effect of sex-sorted sperm dosage on conception rates of Holstein cows and heifers. J. M. DeJarnette*¹, R. L. Nebel¹, C. E. Marshall¹, J. F. Moreno², C. R. McCleary², and R. W. Lenz², ¹*Select Sires, Inc., Plain City, OH*, ²*Sexing Technologies, Inc., Navasota, TX.*
- TH174 An update on the commercial application of sex-sorted semen in Holstein heifers. J. M. DeJarnette*, R. L. Nebel, and C. E. Marshall, *Select Sires, Inc., Plain City, OH.*
- TH175 Use of commercially available oocytes and sexed sperm for IVF/ET and AI in dairy cattle. S. Rasmussen*, Z. Brink, K. McSweeney, and G. E. Seidel, *Colorado State University, Fort Collins.*
- TH176 Effects of heterospermic insemination on conception rates of lactating dairy cows. J. M. DeJarnette*¹, R. L. Nebel¹, D. Laansma², and C. E. Marshall¹, ¹*Select Sires, Inc., Plain City, OH*, ²*Northstar Cooperative, East Lansing, MI.*
- TH177 Effects of preincubation of sperm at 38.5 or 40°C before insemination on developmental competence of bovine embryos derived from *in vitro* fertilization. K. E. M. Hendricks* and P. J. Hansen, *University of Florida, Gainesville.*
- TH178 Paternal influence on the *in vitro* embryonic development of vitrified oocytes based on estimated relative conception rate. V. M. Anchamparuthy*, A. Dhali, R. E. Pearson, W. M. Lott, and F. C. Gwazdauskas, *Virginia Polytechnic Institute & State University, Blacksburg.*
- TH179 Effects of dietary fats differing in n-3/n-6 ratio on oocyte quality in dairy cows. M. Zachut*^{1,2}, I. Dekel¹, H. Lehrer¹, A. Arieli², A. Arav¹, and U. Moallem¹, ¹*Agriculture Research Organization, Bet Dagan, Israel*, ²*Faculty of Agriculture, Hebrew University, Rehovot, Israel.*
- TH180 Influence of cysteine in conjunction with growth factors during *in vitro* production of bovine embryos. W. M. Lott*, V. M. Anchamparuthy, M. L. McGilliard, I. K. Mullarky, and F. C. Gwazdauskas, *Virginia Polytechnic Institute & State University, Blacksburg.*
- TH181 Simulated microgravity conditions affect preimplantation bovine embryo development *in vitro*. S. Jung*, S. D. Bowers, and S. T. Willard, *Mississippi State University, Mississippi State.*
- TH182 Insulin-like growth factor-1 reduces the anti-development effects of menadione on development of bovine preimplantation embryos. J. I. Moss* and P. J. Hansen, *University of Florida, Gainesville.*
- TH183 Effect of the addition of hyaluronan to bovine embryo culture on *in vitro* survival after cryopreservation and *in vivo* survival following transfer to recipients. L. Bonilla*¹, J. Block^{1,2}, and P. J. Hansen¹, ¹*University of Florida, Gainesville*, ²*EmboGen LLC, Gainesville, FL.*
- TH184 Effect of progesterone concentration during follicular development on fertilization and embryo quality in dairy cows. R. L. A. Cerri*^{1,2}, R. C. Chebel², F. Rivera², C. D. Narciso², R. A. Oliveira², and J. E. P. Santos¹, ¹*University of Florida, Gainesville*, ²*University of California Davis, Tulare.*
- TH185 Milk production and rectal temperature during pregnancy in lactating dairy cow recipients. D. T. G. Jardina*¹, F. L. Aragon², M. B. Veras², S. Soriano³, N. Sobreira³, A. B. Scarpa¹, P. L. T. Justolin¹, and J. L. M. Vasconcelos¹, ¹*FMVZ, Unesp, Botucatu, SP, Brazil*, ²*Policlinica Pioneiros, PR, Brazil*, ³*Farm Colorado, SP, Brazil.*

**Production, Management and the Environment
Calf, Young Stock and Stress Management
Exhibit Hall CDE**

- TH186 Nursery performance in gilts farrowed by females housed in individual stalls and/or group pens during gestation. M. J. Estienne* and A. F. Harper, *Virginia Polytechnic Institute and State University, Blacksburg.*
- TH187 Group feeding dairy calves. D. G. Johnson*¹, C. Jergenson¹, and H. Chester-Jones², ¹*University of Minnesota, Morris*, ²*University of Minnesota, Waseca.*
- TH188 Impact of an acidifier in milk replacer or calf starter on Holstein heifer performance and health. M. Raeth-Knight*¹, B. Ziegler², R. Larson², S. Hayes³, D. Ziegler⁴, H. Chester-Jones⁴, G. Golombeski¹, and J. Linn¹, ¹*University of Minnesota, St. Paul*, ²*Hubbard Feeds, Mankato, MN*, ³*Milk Products, Chilton, WI*, ⁴*University of Minnesota, Southern Research and Outreach Center, Waseca.*

- TH189 Pre- and post weaning performance and health of calves fed different milk replacer programs using non-medicated additives and different feeding rates. S. Hayes^{*1}, B. Ziegler², R. Larson², D. Ziegler³, H. Chester-Jones³, M. Raeth-Knight⁴, J. Linn⁴, and G. Golombeski⁴, ¹*Milk Products, Chilton, WI*, ²*Hubbard Feeds, Mankato, MN*, ³*University of Minnesota Southern Research and Outreach Center, Waseca*, ⁴*University of Minnesota, St. Paul*.
- TH190 Pre- and post weaning performance and health of calves fed texturized calf starters with different processed corn or on a different milk replacer feeding schedule. B. Ziegler^{*1}, R. Larson¹, D. Ziegler², H. Chester-Jones², M. Raeth-Knight³, G. Golombeski³, and J. Linn³, ¹*Hubbard Feeds, Mankato, MN*, ²*University of Minnesota Southern Research and Outreach Center, Waseca*, ³*University of Minnesota, St. Paul*.
- TH191 Performance of post weaned Holstein heifer calves transitioned to group housing using different management strategies while fed a common diet. D. Ziegler^{*1}, B. Ziegler², M. Raeth-Knight³, R. Larson², G. Golombeski³, J. Linn³, and H. Chester-Jones¹, ¹*University of Minnesota Southern Research and Outreach Center, Waseca*, ²*Hubbard Feeds, Mankato, MN*, ³*University of Minnesota, St. Paul*.
- TH192 Performance and growth of Holstein dairy heifers fed grain mixes supplemented with differing protein and non-protein nitrogen sources. R. Larson^{*1}, B. Ziegler¹, M. Raeth-Knight², G. Golombeski², J. Linn², H. Chester-Jones³, and D. Ziegler³, ¹*Hubbard Feeds, Mankato, MN*, ²*University of Minnesota, St. Paul*, ³*University of Minnesota Southern Research and Outreach Center, Waseca*.
- TH193 Performance and growth of young Holstein dairy heifers limit-fed diets based on body weight. H. Chester-Jones^{*1}, D. Ziegler¹, R. Larson², B. Ziegler², M. Raeth-Knight³, and G. Golombeski³, ¹*University of Minnesota Southern Research and Outreach Center, Waseca*, ²*Hubbard Feeds, Mankato, MN*, ³*University of Minnesota, St. Paul*.
- TH194 Pre- and post weaning performance and health of calves fed milk replacers supplemented with trace minerals from differing sources. G. Golombeski^{*1}, S. Hayes², M. Raeth-Knight¹, B. Ziegler³, R. Larson³, D. Ziegler⁴, H. Chester-Jones⁴, and J. Linn¹, ¹*University of Minnesota, St. Paul*, ²*Milk Products, Chilton, WI*, ³*Hubbard Feeds, Mankato, MN*, ⁴*University of Minnesota Southern Research and Outreach Center, Waseca*.
- TH195 Effect of the origin, month born, and shipment group on growth of Holstein heifers at a raising facility. J. Wohlt^{*1}, C. Jin¹, and J. Ferguson², ¹*Rutgers University, New Brunswick, NJ*, ²*University of Pennsylvania, Kennett Square*.
- TH196 The association of mortality and 60 day culling rates with housing, feeding and pasture systems. C. D. Dechow^{*1} and R. C. Goodling², ¹*Penn State University, University Park*, ²*Pennsylvania State Cooperative Extension, University Park*.
- TH197 How winter conditions affect feed intake of steers in different housing systems. H. Koknaroglu¹, Z. Otles², T. Mader³, T. Purevjav^{*4}, and P. Hoffman⁴, ¹*Suleyman Demirel University, Department of Animal Science, Isparta, Turkey*, ²*Frontier Science and Technology Research Foundation, Madison, WI*, ³*University of Nebraska, Lincoln*, ⁴*Iowa State University, Ames*.
- TH198 Effect of age and breed on reproductive performance in the tropics. II. Beef heifers bred at 11 to 16 months of age. Year 2004. A. C. Pereira^{*1}, R. L. Remonato², G. R. Pacheco², E. J. Bungenstab¹, and S. P. Schmidt¹, ¹*Auburn University, Auburn, AL*, ²*IACO Agrícola S.A., Chapadão do Sul, Mato Grosso do Sul, Brazil*.
- TH199 Effect of age and breed on reproductive performance in the tropics. I. Beef heifers bred at 11 to 15 months of age. Year 2002. E. J. Bungenstab^{*1}, R. Remonato², G. R. Pacheco², A. C. Pereira¹, and S. P. Schmidt¹, ¹*Auburn University, Auburn, AL*, ²*IACO Agrícola SA, Chapadão do Sul, MS, Brazil*.
- TH200 Effect of early weaning of first-calf beef heifers. II. On calf and subsequent open heifer performance in the tropics. E. J. Bungenstab^{*1}, R. Remonato², G. R. Pacheco², A. C. Pereira¹, and S. P. Schmidt¹, ¹*Auburn University, Auburn, AL*, ²*IACO Agrícola SA, Chapadão do Sul, MS, Brazil*.
- TH201 Effect of early weaning of first-calf beef heifers. I. On calf and subsequent heifer weights and pregnancy for third-parity in the tropics. A. C. Pereira^{*1}, R. Remonato², G. R. Pacheco², E. J. Bungenstab¹, and S. P. Schmidt¹, ¹*Auburn University, Auburn, AL*, ²*IACO Agrícola SA, Chapadão do Sul, MS, Brazil*.
- TH202 Effect of calving scheme, seasonal vs. year-round, on production, reproductive performance, and culling by organically-managed dairy herds in Southeastern Pennsylvania. K. Griswold^{*1}, H. Karreman², and J. High³, ¹*Penn State Cooperative Extension, University Park*, ²*Penn Dutch Cow Care, Gap, PA*, ³*Lancaster DHIA, Manheim, PA*.
- TH203 Influence of horn flies on the behavior of beef cattle. H. T. Boland^{*1} and G. Scaglia², ¹*Virginia Tech, Blacksburg*, ²*Iberia Research Station, LSU Agricultural Center, Jeanerette, LA*.
- TH204 Description of factors influencing reticular temperatures in lactating dairy cows. J. M. Bewley^{*}, M. E. Einstein, M. W. Grott, and M. M. Schutz, *Purdue University, West Lafayette, IN*.
- TH205 Relationship of temperament and growth in the suckling beef calf. K. J. Matheny^{*1}, J. P. Banta¹, D. A. Neuendorff¹, T. H. Welsh Jr.², R. C. Vann³, and R. D. Randel¹, ¹*Texas AgriLife Research and Extension, Overton*, ²*Texas AgriLife Research, College Station*, ³*Mississippi State University, Raymond*.
- TH206 Effect of supplemental saturated fatty acids on production and body temperature in heat-stressed mid-lactation dairy cows. J. P. Wang^{1,2}, D. P. Bu¹, J. Q. Wang^{*1}, X. K. Huo¹, T. J. Guo¹, H. Y. Wei¹, L. Y. Zhou¹, R. R. Rastani³, L. H. Baumgard⁴, and F. D. Li², ¹*Chinese Academy of Agricultural Sciences, Beijing, China*, ²*Gansu Agricultural University, Gansu, China*, ³*MSC Specialty Nutrition, Dundee, IL*, ⁴*University of Arizona, Tucson*.

- TH207 Ocular thermography as a measure of body temperature in beef cattle: Influences of environmental factors. S. M. Dray^{*1}, R. C. Vann², A. B. Chromiak¹, J. K. Lyons³, T. H. Welsh Jr.³, R. D. Randel⁴, and S. T. Willard¹, ¹MAFES, Mississippi State University, Mississippi State, ²MAFES, Mississippi State University, Raymond, ³Texas A&M System, College Station, ⁴Texas AgriLife Research and Extension Center, Texas A&M System, Overton.
- TH208 Forced-traffic in automatic milking systems effectively reduces the need to fetch cows but alters eating behavior of dairy cattle. A. Bach^{*1,2}, M. Devant², and A. Ferrer², ¹ICREA, Barcelona, Spain, ²IRTA-Unitat de Remugants, Barcelona, Spain.

Ruminant Nutrition Fats and Carbohydrates – Beef, Sheep, Miscellaneous Ruminants Exhibit Hall CDE

- TH209 Effect of physical particle size on ruminal and post-ruminal disappearance of nutrients of a mixed concentrate in Holstein steers. H. H. Jahani-Azizabadi¹, M. Danesh Mesgaran^{*1}, and A. Rahmatimanesh², ¹Ferdowsi University of Mashhad, Mashhad, Iran, ²Heram Talaei Shargh Feed Mill Company, Nishabour, Iran.
- TH210 Comparative effects of whole, reconstituted-rolled, reconstituted-whole, dry-rolled and ground sorghum grain on growth and carcass characteristics in lambs. P. Orozco, R. Lazcano, and L. Corona^{*}, Universidad Nacional Autónoma de México. Facultad de Medicina Veterinaria y Zootecnia. Departamento de Nutrición Animal y Bioquímica, Cd. Universitaria, D.F., México, 04510.
- TH211 Effects of non-fiber carbohydrates supplementation on some blood metabolites of Holstein steers. F. Rezaii, M. Danesh Mesgaran, A. Heravi Mousavi^{*}, and M. Nasiri, Ferdowsi University of Mashhad, Mashhad, Iran.
- TH212 Ruminal and hindgut *in vitro* fermentation and methane production in concentrate-fed lambs. M. J. Ranilla^{*}, M. L. Tejido, S. Ramos, C. Saro, M. E. Martínez, and M. D. Carro, Universidad de León, León, Spain.
- TH213 Effect of *Bacillus cereus* var. toyoi supplementation on performance, metabolism, and histological morphology of the digestive tract in young Holstein bulls fed a high-concentrate diet. S. Marti¹, A. Bach^{1,2}, and M. Devant^{*1}, ¹Animal Nutrition, Management, and Welfare Group, IRTA-Unitat de Remugants, Barcelona, Spain, ²ICREA, Barcelona, Spain.
- TH214 Blood cell profiles and plasma concentrations of glucose and cortisol of Nellore steers and bulls selected for low and high residual feed intake before and following a mild stressor. R. C. Gomes^{*1}, M. A. Ballou², R. F. Siqueira¹, T. R. Stella¹, J. A. Negrão¹, R. D. Sainz³, and P. R. Leme¹, ¹University of São Paulo, Pirassununga, Brazil, ²Texas Tech University, Lubbock, ³University of California, Davis.
- TH215 Nutritional assessment of banana (*Musa paradisiaca*) leaves and pseudostems for ruminants. E. González-García^{*2}, O. Cáceres¹, H. Archimède², J. Arece¹, H. Santana¹, and R. Delgado¹, ¹Estación Experimental de Pastos y Forrajes 'Indio Hatuey', Matanzas, Cuba, ²INRA UR143 Unité de Recherches Zootechniques (URZ), Guadeloupe (French West Indies).
- TH216 The effect of replacing corn with glycerol on rumen fermentation and fiber digestibility. A. A. AbuGhazaleh¹, S. Abo El-Nor², and R. Babu^{*1}, ¹Southern Illinois University, Carbondale, ²Egyptian National Research Center, Cairo, Egypt.
- TH217 Effects of replacing barley with corn grain in finishing diets on blood and rumen metabolites of Holstein male calves. F. Fatehi, K. Reza-Yazdi, M. Dehghan-Banadaky^{*}, M. Moradi-Shahrbabak, and H. Bahrami, Tehran University, Karaj, Tehran, Iran.
- TH218 Nutritional and growth patterns of Nellore bulls, steers and heifers, fed diets containing two concentrate allowance levels. P. V. R. Paulino^{*1}, S. de C. Valadares Filho¹, M. A. Fonseca¹, M. I. Marcondes¹, E. Detmann¹, N. K. de P. Souza¹, and R. D. Sainz¹, ¹Universidade Federal de Viçosa, Viçosa, Minas Gerais, Brazil, ²University of California, Davis.
- TH219 Polynomial regression between ruminal bacteria population and pH in beef steers fed high forage diets. S. J. Liu, J. Q. Wang^{*}, D. P. Bu, S. Liang, L. Liu, H. Y. Wei, L. Y. Zhou, and K. L. Liu, Chinese Academy of Agricultural Sciences, Beijing, China.
- TH220 Effect of substitution barley grain with dried sugar beet pulp on venous blood gas of Holstein steers. M. Mojtahedi, M. Danesh Mesgaran^{*}, A. Heravi Moussavi, and A. Tahmasebi, Ferdowsi University of Mashhad, Mashhad, Iran.
- TH221 Ruminal, fecal and urine pH of Holstein steers fed diets containing barley grain and(or) sugar beet pulp. M. Mojtahedi, M. Danesh Mesgaran^{*}, A. Heravi Moussavi, and A. Tahmasebi, Ferdowsi University of Mashhad, Mashhad, Iran.
- TH222 Feedlot performance, carcass traits and meat tenderness of *Bos indicus* type bullocks fed high concentrate diets. T. de O. Cucki¹, M. D. B. Arrigoni¹, C. L. Martins¹, L. A. L. Chardulo¹, A. C. Silveira¹, H. N. de Oliveira¹, R. da C. Cervieri¹, D. D. Millen¹, R. D. L. Pacheco^{*1}, S. R. Baldin¹, J. P. S. T. Bastos¹, T. M. Mariani¹, L. M. N. Sarti¹, R. S. Barducci¹, T. C. B. de Silva², ¹FMVZ/UNESP, Botucatu, São Paulo, Brazil, ²Faculdade de Zootecnia/UNESP, Dracena, São Paulo, Brazil.
- TH223 Frothy bloat-related shifts in the ruminal bacterial population in steers fed Bermuda grass hay and grazing wheat forage. W. E. Pinchak^{*1}, B. R. Min^{1,3}, C. Hernandez², and M. E. Hume², ¹Texas AgriLife Research, Vernon, TX, ²USDA-ARS, Southern Plains Agricultural Research Center, Food and Feed Safety Research Unit, College Station, TX, ³Ichthus Education Center, La Trinitaria, Chiapas, Mexico.

- TH224 Beef heifers performance fed with different forage sources. G. R. Siqueira^{2,1}, R. A. Reis^{*1,4}, R. P. Schocken-Iturrino^{1,4}, F. Dutra de Resende², T. T. Berchielli^{1,4}, M. de Toledo Piza Roth^{1,4}, and A. P. de Toledo Piza Roth^{1,3}, ¹São Paulo State University, Jaboticabal, São Paulo, Brazil, ²APTA Regional de Colina, Colina, São Paulo, Brazil, ³Fundaç o de Amparo Pesquisa do Estado de S o Paulo, S o Paulo, S o Paulo, Brazil, ⁴Conselho Nacional de Desenvolvimento Cient fico e Tecnol gico, Brasilia, Distrito Federal, Brazil.
- TH225 Effects of hay restriction with additional co-product supplementation on cow and calf performance and hay disappearance during a winter feeding program. A. Brauch*, J. Sexton, B. Wiegand, M. Kerley, D. Wilson, D. Mallory, H. Smith, M. Ellersieck, and J. Williams, *University of Missouri, Columbia.*
- TH226 Effects of corn processing method on performance and carcass characteristics of finishing beef cattle fed diets containing sorghum wet distiller's grains plus solubles. J. Leibovich*, J. T. Vasconcelos, J. P. McMeniman, K. E. Hales, R. R. Reuter, R. J. Rathmann, and M. L. Galyean, *Texas Tech University, Lubbock, TX.*
- TH227 Feeding behavior of feedlot cattle from different breed types fed high concentrate diets with different NDF levels. L. M. N. Sarti^{1,3}, M. D. B. Arrigoni¹, C. L. Martins¹, D. D. Millen¹, R. D. L. Pacheco^{*1}, S. A. Matsuhara¹, M. Parrili¹, M. V. Fossa¹, J. P. S. T. Bastos¹, T. M. Mariani¹, R. S. Barducci¹, T. C. B. da Silva², L. F. S. Niero¹, S. R. Baldin¹, H. N. de Oliveira¹, ¹FMVZ/UNESP, Botucatu, S o Paulo, Brazil, ²Faculdade de Zootecnia/UNESP, Dracena, S o Paulo, Brazil, ³Apoio FAPESP.
- TH228 Dietary inclusion of crude glycerol changes beef steer growth performance and intramuscular fat deposition. B. A. Verseman*, B. R. Wiegand, M. S. Kerley, J. H. Porter, K. S. Roberts, and H. L. Evans, *University of Missouri, Columbia.*
- TH229 Supplementation programs for wheat straw-based wintering cow programs. K. M. Wood*, I. B. Mandell, and K. C. Swanson, *University of Guelph, Guelph, ON, Canada.*
- TH230 Effect of n-3 PUFA supplementation on embryo recovery rate, quality and gene expression in beef heifers. S. Childs^{*1,2}, F. Carter², C. O. Lynch^{1,2}, J. M. Sreenan¹, P. Lonergan², A. A. Hennessy³, and D. A. Kenny², ¹Teagasc Production Research Centre, Athenry, Co. Galway, Ireland, ²University College Dublin, Belfield, Dublin, Ireland, ³Teagasc Food Research Centre, Moorepark, Fermoy, Co. Cork, Ireland.
- TH231 Qualitative aspects of the carcass and meat of Nellore cattle fed diet with different levels of fat. J. Duarte Messana*, T. T. Berchielli¹, R. Carrilho Canesin¹, A. Ferreira Ribeiro¹, P. Braga Arcuri², and P. Moura Dian¹, ¹Faculdade de Ci ncias Agr rias e Veterin rias /UNESP - Campus Jaboticabal, Jaboticabal, S o Paulo, Brazil, ²CNPGL/Embrapa, Juiz de Fora, Minas Gerais, Brazil.
- TH232 Effects of glycerin supplementation on performance and meat quality of young Holstein bulls fed high-concentrate diets. N. Mach^{*1}, A. Bach^{1,2}, and M. Devant¹, ¹Animal Nutrition, Management, and Welfare Group, IRTA-Unitat de Remugants, Barcelona, Spain, ²ICREA, Barcelona, Spain.

Ruminant Nutrition Minerals and Vitamins – Dairy Exhibit Hall CDE

- TH233 Effect of dietary cation-anion difference on performance and blood acid-base balance of early-lactating dairy cows under heat stress. D. P. Bu, L. Jia, J. Q. Wang*, H. Y. Wei, and L. Y. Zhou, *Chinese Academy of Agricultural Sciences, Beijing, P. R. China.*
- TH234 Effects of different rates of abomasal infusion of nicotinic acid on plasma NEFA concentrations in feed-restricted Holstein cows. J. B. Pescara*, J. A. A. Pires, and R. R. Grummer, *University of Wisconsin, Madison.*
- TH235 Apparent ruminal synthesis and intestinal disappearance of vitamin B₁₂ analogues in dairy cows. D. E. Santschi^{*1}, C. L. Girard¹, and R. H. Allen², ¹Dairy and Swine R&D Centre, Sherbrooke, QC, Canada, ²University of Colorado, Denver, CO.
- TH236 Effect of different form of selenium on the polyunsaturated fatty acids of milk fat from dairy cows fed fat diets. L. Q. Wang, J. Q. Wang*, D. P. Bu, S. J. Liu, L. Wang, N. Xia, H. Y. Wei, and L. Y. Zhou, *Chinese Academy of Agricultural Sciences, Beijing, China.*
- TH237 Bone development in dairy heifers fed diets with and without supplemental phosphorus. N. M. Esser^{*1}, P. C. Hoffman¹, W. K. Coblenz², M. W. Orth³, and K. A. Weigel¹, ¹University of Wisconsin, Madison, ²US Dairy Forage Research Center, Marshfield, WI, ³Michigan State University, East Lansing.
- TH238 Dairy cows might discriminate between vitamin D₂ and vitamin D₃ in the gastro intestinal tract. L. Hymoeller^{*1,2}, S. K. Jensen², and M. O. Nielsen¹, ¹University of Copenhagen, Groennegaardsvej, Frederiksberg C, ²University of Aarhus, Blichers All , Tjele, Denmark
- TH239 Effects of supplements of folic acid, vitamin B₁₂ and rumen-protected methionine on whole body kinetics of glucose and methionine (Met) in lactating dairy cows. A. Preynat^{*1,2}, H. Lapiere², C. Thivierge¹, M. F. Palin², J. J. Matte², A. Desrochers³, and C. L. Girard², ¹Universite Laval, Quebec, QC, Canada, ²Agriculture and Agri-Food Canada, Sherbrooke, QC, Canada, ³Universite de Montreal, St-Hyacinthe, QC, Canada.
- TH240 Effect of organic trace mineral (4-Plex[®]) supplementation on dry matter intake, milk production, health events, and body weight in dairy cows. K. S. Hackbart^{*1}, R. M. Ferreira¹, M. T. Socha², R. D. Shaver¹, M. C. Wiltbank¹, and P. M. Fricke¹, ¹University of Wisconsin, Madison, ²Zinpro Corp., Eden Prairie, MN.

- TH241 Non-acid-base factors partly responsible for increased urinary calcium excretion when anionic salts are fed. L. Irvine¹, M. Freeman¹, D. J. Donaghy¹, and J. R. Roche^{*2}, ¹University of Tasmania, Burnie, Australia, ²DairyNZ, Hamilton, New Zealand.
- TH242 Influence of a high potassium diet on the excretion of minerals after calving. M. R  rat¹, A. Philipp^{1,2}, H. D. Hess¹, F. Dohme^{*1}, and A. Liesegang², ¹Agroscope Liebefeld-Posieux Research Station ALP, Posieux, Switzerland, ²University Z  rich, Z  rich, Switzerland.
- TH243 Effect of selenium yeast on selenium status, thyroid hormone concentrations and passive transfer of immunoglobulins in dairy cows and calves. K. M. Koenig* and K. A. Beauchemin, *Agriculture and Agri-Food Canada, Research Centre, Lethbridge, AB, Canada.*
- TH244 Plasma concentration of nicotinic acid and derivatives in response to abomasal infusions of nicotinic acid. J. A. A. Pires^{*1}, C. L. Girard², and R. R. Grummer¹, ¹University of Wisconsin, Madison, ²Dairy and Swine R&D Centre, Agriculture and Agri-Food Canada, Lennoxville, QC, Canada.
- TH245 Carry-over effects of iodine and selenium supplements in lactating dairy cows. M. Battaglia, M. Moschini, G. Piva*, and F. Masoero, *Universit   Cattolica del Sacro Cuore, Piacenza, Italy.*
- TH246 Corn silage versus alfalfa hay for dairy cows: Effects of dietary cations. R. A. Erdman*, L. S. Piperova, and R. A. Kohn, *University of Maryland, College Park.*

Ruminant Nutrition Proteins and Amino Acids – Dairy Exhibit Hall CDE

- TH247 Influence of concentrate and protein levels on milk production by Holstein cows. R. P. Lana^{*1,2}, G. F. Sobreira¹, M. I. Le  o¹, J. A. Freitas³, D. C. Abreu¹, W. C. Lopes¹, and G. Guimar  es¹, ¹Universidade Federal de Vi  osa, Vi  osa, MG, Brazil, ²CNPq, Bras  lia, DF, Brazil, ³Universidade Federal do Paran  , Palotina, PR, Brazil.
- TH248 Blood and ruminal metabolites of early lactating Iranian Holstein cows fed raw or roasted whole soybean. M. H. Fathi Nasri^{*1}, M. Danesh Mesgaran², R. Valizadeh², and H. Farhangfar¹, ¹The University of Birjand, Birjand, Iran, ²Ferdowsi University of Mashad, Mashad, Iran.
- TH249 Endogenous nitrogen (EN) flows: Effects of metabolizable protein (MP) supply in lactating dairy cows. D. Valkeners¹, H. Lapierre¹, U. Sch  nhusen², P. Junghans², C. C. Metges², and D. R. Ouellet^{*1}, ¹Agriculture and Agri-Food Canada, Sherbrooke, QC, Canada, ²Research Unit Nutritional Physiology, Dummerstorf, Germany.
- TH250 Is D-methionine (Met) used by the dairy cow? H. Lapierre^{*1}, G. Holtrop², A. G. Calder³, J. Renaud¹, and G. E. Lobley³, ¹Agriculture and Agri-Food Canada, Sherbrooke, QC, Canada, ²BioSS, Rowett Research Institute, Aberdeen, UK, ³Rowett Research Institute, Aberdeen, UK.
- TH251 Response in feed intake, blood metabolites, and milk production to varying ruminal protein undegradability in early lactation Holstein cows. M. Jahani-Moghadam¹, H. Amanlou², and A. Nikkhah^{*2,3}, ¹Islamic Azad University, Karaj, Iran, ²Zanjan University, Zanjan, Iran, ³University of Illinois, Urbana.
- TH252 Effect of rumen degraded and rumen undegraded protein on microbial protein synthesis in mid-lactation cows. S. K. Ivan-Dinh^{*1}, R. L. Baldwin, VI², and R. A. Kohn¹, ¹University of Maryland, College Park, ²USDA-ARS, Bovine Functional Genomics Laboratory, Beltsville, MD.
- TH253 Nitrogen balance and excretion from grazing lactating cows supplemented with conjugated linoleic acid (CLA). D. E. de Oliveira^{*1}, S. R. de Medeiros², and D. P. D. Lanna³, ¹Centro de Educa  o Superior do Oeste, Universidade Estadual de Santa Catarina/CEO, Chapec  , Santa Catarina, Brasil, ²Centro Nacional de Pesquisa de Gado de Corte, Campo Grande, Mato Grosso do Sul, Brasil, ³Universidade de S  o Paulo/ESALQ, Piracicaba, S  o Paulo, Brasil.
- TH254 Effects of an extruder-expelled soybean meal product on milk production and components for Holstein dairy cows. Y.-H. Chung*, K. S. Heyler, J. A. Hartzell, V. A. Ishler, and G. A. Varga, *The Pennsylvania State University, University Park.*
- TH255 Increasing methionine, lysine or both does not increase milk protein percent in either high producing or low producing dairy cows. H. F. Bucholtz^{*1}, J. S. Liesman¹, P. N. Naaz², M. J. Stevenson³, W. H. Heimbeck³, and R. A. Patton⁴, ¹Michigan State University, East Lansing, ²Upper Peninsula Experiment Station, Chatham, MI, ³Evonik-Degussa AG, Hanau, Germany, ⁴Nittany Dairy Nutrition, Mifflinburg, PA.
- TH256 Ammonia emissions and olfactometry analysis of limit fed high and low concentrate diets with different forage quality in dairy heifers. G. J. Lascano*, P. A. Topper, A. Adviento-Borbe, D. Topper, R. C. Brandt, E. F. Wheeler, and A. J. Heinrichs, *The Pennsylvania State University, University Park.*
- TH257 Effect of abomasal glucose infusion on splanchnic amino acid metabolism in freshening dairy cows. M. Larsen* and N. B. Kristensen, *University of Aarhus, Tjele, Denmark.*
- TH258 The performance of calves fed a milk replacer containing wheat protein. A. B. Chestnut* and D. L. Carr, *Vigortone Ag Products, Hiawatha, IA.*

- TH259 Effect of Optigen® and ruminally degradable protein level on fermentation, digestion, and N flow in rumen-simulating fermenters. G. A. Harrison*, M. D. Meyer, and K. A. Dawson, *Alltech Biotechnology, Nicholasville, KY*.
- TH260 Effect of Optigen® and dietary neutral detergent fiber level on fermentation, digestion, and N flow in rumen-simulating fermenters. G. A. Harrison*, M. D. Meyer, and K. A. Dawson, *Alltech Biotechnology, Nicholasville, KY*.
- TH261 Diet formulation strategy and Optigen® effects on fermentation, digestion, and N flow in rumen-simulating fermenters. G. A. Harrison, M. D. Meyer*, and K. A. Dawson, *Alltech Biotechnology, Nicholasville, KY*.
- TH262 Response of lactating cows to the partial replacement of soybean meal by Optigen® II or urea. J. F. dos Santos¹, M. N. Pereira*¹, G. S. Dias Júnior¹, L. L. Bitencourt¹, N. M. Lopes¹, S. Siécola Júnior¹, and J. R. M. Silva², ¹*Universidade Federal de Lavras, Lavras, MG, Brazil*, ²*Centro Federal de Educação Tecnológica, Januária, MG, Brazil*.
- TH263 The effects of reducing dietary nitrogen on ammonia emissions from dairy housing. J. Cyriac*, L. Li, K. F. Knowlton, L. C. Marr, J. A. Ogejo, J. Ligon, M. Reed, and M. D. Hanigan, *Virginia Polytechnic Institute and State University, Blacksburg*.
- TH264 Characterization of wheat-based distiller's dried grain with solubles (DDGS) for ruminants. M. Undi*, J. C. Plaizier, K. H. Ominski, and K. M. Wittenberg, *University of Manitoba, Winnipeg, MB, Canada*.
- TH265 Digestibility of corn distillers protein treated with glutamic acid fermentation solubles or not and exposed to heat damage. P. Summer*, *Ajinomoto USA Inc., Eddyville, IA*.
- TH266 Influence of Optigen® on nitrogen behavior in lactating dairy cows. R. L. Stewart Jr.*¹, J. M. Tricarico¹, D. L. Harmon², W. Chalupa³, K. R. McLeod², G. A. Harrison¹, L. M. Clark², M. D. Meyer¹, R. Garcia-Gonzalez¹, and K. A. Dawson¹, ¹*Alltech Inc., Nicholasville, KY*, ²*University of Kentucky, Lexington*, ³*Global Dairy Consultancy Co. Ltd., Holderness, NH*.
- TH267 Meta-analysis of milk protein yield response data to lysine and methionine supplementation. D. Vyas* and R. A. Erdman, *University of Maryland, College Park*.
- TH268 Do feedstuffs contain a constant protein fraction that is both undegradable in the rumen and indigestible in the small intestine? S. E. Boucher*¹, C. M. Parsons², and C. G. Schwab¹, ¹*University of New Hampshire, Durham*, ²*University of Illinois, Urbana*.
- TH269 Effects of 2-hydroxy 4-(methylthio) butanoic acid isopropyl ester (HMBi) on the organic matter digestibility (OMD) and energy value of corn dried distillers grains with solubles (DDGS). E. Devillard*, L. Ducrocq, C. Richard, and P. A. Geraert, *Adisseo, Commeny, France*.
- TH270 Effects of feeding a controlled rumen release urea on productivity of Holstein cows. A. Highstreet*¹, J. Robison¹, P. H. Robinson², and J. G. Garrett³, ¹*California State University, Fresno*, ²*University of California, Davis*, ³*Balchem Encapsulates, New Hampton, NY*.
- TH271 *In vitro* ruminal protein degradation and microbial protein formation of seed legumes. S. Colombini¹ and G. A. Broderick*², ¹*University of Milan, Milano, Italy*, ²*US Dairy Forage Research Center, Madison, WI*.
- TH272 *In situ* ruminal degradation of nitrogen fractions of cottonseed and canola meals. T. Tashakkori, M. Danesh Mesgaran*, A. R. Heravi Mousavi, and H. Nasri Moghaddam, *Ferdowsi University of Mashhad, Mashhad, Iran*.

Small Ruminant Sheep Exhibit Hall CDE

- TH273 Influence of production traits on the sheep enterprise profitability: A modeling approach. V. Demers Caron*¹, D. Pellerin¹, and F. W. Castonguay^{1,2}, ¹*Université Laval, Québec, Québec, Canada*, ²*Agriculture and Agri-Food Canada, Sherbrooke, Québec, Canada*.
- TH274 Estimating average fiber diameter and variability of wool fleeces using Optical Fibre Diameter Analysers (OFDA 100 and 2000). F. A. Pfeiffer*, C. J. Lupton, and D. F. Waldron, *Texas AgriLife Research, San Angelo, TX*.
- TH275 Performance of F₁ crossbred lambs from Dorper and Katahdin rams and Pelibuey and Barbados Blackbelly ewes. G. M. Pérez, F. A. Rodríguez-Almeida*, M. A. Levario, J. C. Ontiveros, J. A. Villareal, B. Piña, O. G. Núñez, J. R. Peña, and J. A. Ortega, *Universidad Autónoma de Chihuahua, Chihuahua, Chihuahua, México*.
- TH276 Productive performance and carcass characteristics of hair sheep of different genotypes in feedlot. F. G. Rios*, P. Hernandez, J. F. Obregon, D. C. Acosta, R. Cortina, J. J. Ortiz, and J. J. Portillo, *FMVZ-Universidad Autonoma de Sinaloa, Culiacan, Sinaloa, Mexico*.
- TH277 Comparative reproduction characterization among four crossbred groups of hair sheep: Prolificacy. W. R. Getz*, S. Mobini, and S. Gelaye, *Fort Valley State University, Fort Valley, GA*.

- TH278 Male effect on heat distribution and pregnancy rate to timed AI and throughout the breeding season in postpartum Santa Ines ewes. M. V. Biehl¹, A. V. Pires^{*1}, I. Susin¹, C. Q. Mendes¹, F. S. Urano¹, R. S. Gentil¹, E. M. Ferreira¹, G. H. Rodrigues¹, and M. L. Day², ¹Escola Superior de Agricultura Luiz de Queiroz (ESALQ)/University of São Paulo (USP), Piracicaba, SP, Brazil., ²The Ohio State University, Columbus.
- TH279 Retention of sperm motility, viability and fertility in ram semen after liquid storage at 4°C for up to 96 hours. J. L. Mook, J. R. Collins, and S. Wildeus*, Virginia State University, Petersburg.
- TH280 Meat characteristics of crossbred lambs fed normal or heated whole cottonseed¹. R. R. P. S. Corte^{*2}, P. R. Leme², G. Aferri², A. S. C. Pereira², and S. L. Silva², ¹FAPESP, São Paulo, São Paulo, Brazil, ²Universidade de São Paulo, Pirassununga, São Paulo, Brazil.
- TH281 Fatty acid composition of meat from crossbred lambs fed normal or heated whole cottonseed¹. R. R. P. S. Corte^{*2}, P. R. Leme², A. S. C. Pereira², G. Aferri², and J. C. C. Balieiro², ¹FAPESP, São Paulo, São Paulo, Brazil, ²Universidade de São Paulo, Pirassununga, São Paulo, Brazil.
- TH282 Effects of added protein and dietary fat on lamb performance and carcass characteristics when fed differing levels of dried distiller's grains with solubles. M. L. Van Emon*, A. F. Musselman, P. J. Gunn, M. K. Neary, R. P. Lemenager, and S. L. Lake, Purdue University, West Lafayette, IN.
- TH283 Two levels of dried distillers grains with solubles on growth performance and carcass characteristics of Pelibuey sheep. A. Estrada-Angulo*, E. J. Lopez, G. Contreras, B. I. Castro, J. F. Obregon, and A. B. Perez, CA-205-FMVZ-UAS, Culiacan, Sinaloa, Mexico.
- TH284 Dried distillers grains as a supplement for grazing ewe lambs. I. Susin^{*1}, D. D. Clevenger², G. D. Lowe², P. A. Tirabasso², and S. C. Loerch², ¹Escola Superior de Agricultura Luiz de Queiroz (ESALQ)/University of São Paulo(USP), Piracicaba, SP, Brazil, ²The Ohio State University, Wooster.
- TH285 Dried distillers grains as a supplement for finishing ewe lambs. I. Susin^{*1}, A. Radunz², D. D. Clevenger², G. D. Lowe², P. A. Tirabasso², and S. C. Loerch², ¹Escola Superior de Agricultura Luiz de Queiroz (ESALQ)/University of São Paulo(USP), Piracicaba, SP, Brazil, ²The Ohio State University, Wooster.
- TH286 Effects of barley straw treated with different levels of urea and elemental sulfur in diets of late gestation ewes: Effects on lambing and dietary *in vitro* digestibility. K. RezaYazdi*, H. Khalilvandí, and N. Vahdani, University of Tehran, Karaj, Tehran, Iran.
- TH287 Effects of urea treated barely straw and inorganic sulfur inclusion on *in vitro* digestibility of TMR and performance of fattening Varanini lambs. K. RezaYazdi*, N. Vahdani, and H. Khalilvandí, University of Tehran, Karaj, Tehran, Iran.
- TH288 Effects of protein sources on performance and carcass characteristics of feedlot lambs and Small Ruminant Nutrition System estimates evaluation. M. A. A. Queiroz, I. Susin, A. V. Pires, C. Q. Mendes*, O. C. Almeida, R. S. Gentil, R. C. Amaral, A. L. Gastaldello Jr., and G. H. Rodrigues, Escola Superior de Agricultura Luiz de Queiroz (ESALQ)/University of São Paulo (USP), Piracicaba, SP, Brazil.
- TH289 Total replacement of soybean meal by urea in high grain diets for feedlot lambs. C. Q. Mendes*, I. Susin, A. V. Pires, M. A. A. Queiroz, F. S. Urano, G. H. Rodrigues, R. S. Gentil, E. M. Ferreira, and M. V. Biehl, Escola Superior de Agricultura Luiz de Queiroz (ESALQ)/University of São Paulo (USP), Piracicaba, SP, Brazil.
- TH290 Effects of replacing corn by soybean hulls on apparent digestibility of nutrients and ruminal parameters in lambs. E. M. Ferreira, A. V. Pires, I. Susin, C. Q. Mendes*, R. C. Araujo, M. A. A. Queiroz, F. S. Urano, R. S. Gentil, R. C. Amaral, and S. Gilaverte, Escola Superior de Agricultura Luiz de Queiroz (ESALQ)/University of São Paulo (USP), Piracicaba, SP, Brazil.
- TH291 Performance and carcass characteristics of lambs fed wet low pectin citrus pulp in partial replacement of dried citrus pulp. G. H. Rodrigues, I. Susin, A. V. Pires, L. G. Nussio, C. Q. Mendes*, R. S. Gentil, E. M. Ferreira, M. V. Biehl, and F. S. Urano, Escola Superior de Agricultura Luiz de Queiroz (ESALQ)/University of São Paulo (USP), Piracicaba, SP, Brazil.
- TH292 Apparent digestibility and ruminal parameters of diets containing sugarcane silage with or without additives or fresh sugarcane fed to lambs. R. C. Amaral, A. V. Pires, I. Susin, C. Q. Mendes*, E. M. Ferreira, R. S. Gentil, M. V. Biehl, M. A. A. Queiroz, and G. H. Rodrigues, Escola Superior de Agricultura Luiz de Queiroz (ESALQ)/University of São Paulo (USP), Piracicaba, SP, Brazil.
- TH293 Effects of monensin, sodium bicarbonate and limestone sources on nutrient digestibilities in high grain diets fed to lambs. A. L. Gastaldello Jr., A. V. Pires, I. Susin, C. Q. Mendes*, G. H. Rodrigues, F. S. Urano, M. V. Biehl, R. S. Gentil, and G. B. Mourão, Escola Superior de Agricultura Luiz de Queiroz (ESALQ)/University of São Paulo (USP), Piracicaba, SP, Brazil.
- TH294 Use of salt for limiting supplement intake for hair sheep fed buffel grass (*Cenchrus ciliaris* L.). H. Morales-Treviño^{*1}, M. Mireles¹, E. Gutierrez-Ornelas^{1,2}, H. Bernal-Barragan¹, J. Colin-Negrete¹, F. Sanchez-Dávila¹, and C. Rodriguez-Alvarado³, ¹Facultad de Agronomía, Universidad Autónoma de Nuevo León, Marín, Nuevo León, México., ²Consortio Técnico del Noreste de México, Guadalupe, Nuevo León, México, ³Instituto Tecnológico de Altamira, Altamira, Tamaulipas, México.

OTHER EVENTS

ADSA Business Meeting

206

9:30 AM – 10:00 AM

ASAS Business Meeting

203

9:30 AM – 10:30 AM

SYMPOSIA AND ORAL SESSIONS

Dairy Foods Dairy

Products and Processing II

Chair: Kayanush Aryana, Louisiana State University

121

- 10:00 AM 509 **ADSA Pioneer:** Collegiate dairy products evaluation—Past and future. R. T. Marshall*, *University of Missouri, Columbia.*
- 10:30 AM 510 Performance comparison of ceramic and polymeric microfiltration (MF) membranes for separation of casein and serum protein (SP) from skim milk at 50°C. J. Zulewska*¹, M. W. Newbold², and D. M. Barbano², ¹*University of Warmia and Mazury, Olsztyn, Poland,* ²*Cornell University, Ithaca, NY.*
- 10:45 AM 511 Functional properties of whey proteins affected by heat and high pressure shearing. M. Dissanayake and T. Vasiljevic*, *Victoria University, Melbourne, VIC, Australia.*
- 11:00 AM 512 Production of whey protein concentrate 80 with improved clarity and flavor. I. Jarto*¹, J. A. Lucey¹, S. Damodaran¹, S. A. Rankin¹, and K. E. Smith², ¹*University of Wisconsin, Madison,* ²*Wisconsin Center for Dairy Research, Madison, WI.*
- 11:15 AM 513 Production of structured lipids containing palmitic acid for infant milk formulation and characterization of their oxidative stability. C. O. Maduko¹, C. C. Akoh¹, R. R. Eitenmiller¹, and Y. W. Park*^{2,1}, ¹*University of Georgia, Athens,* ²*Fort Valley State University, Fort Valley, GA.*
- 11:30 AM 514 The impact of fat globules' colloidal stability on the pre-gelation stages of rennet coagulation process. Z. Gaygadzhiev*, M. Alexander, A. Hill, and M. Corredig, *University of Guelph, Guelph, ON, Canada.*
- 11:45 AM 515 Impact of changing temperature after measurable gelation on the properties of fermented milk gels. Y. Peng*¹, D. S. Horne², and J. A. Lucey¹, ¹*University of Wisconsin, Madison,* ²*Formerly of Hannah Research Institute, Ayr, Scotland.*
- 12:00 PM 516 Rheological properties of stirred yoghurts made with whey protein isolate-pectin complexes as stabilizing agent. M.-C. Gentés*^{1,2}, S. L. Turgeon¹, and D. St-Gelais², ¹*STELA Dairy Research Centre and Institute of Nutraceuticals and Functional Foods (INAF), Quebec, QC, Canada,* ²*Food Research and Development Centre, Agriculture and Agri-Food Canada, Saint-Hyacinthe, QC, Canada.*
- 12:15 PM 517 Changes in relative percentages of fatty acids in raw goat milk, its yoghurt and salted yoghurt during manufacture. Z. Guler*¹ and Y. W. Park², ¹*Mustafa Kemal University, Antakya, Hatay, Turkey,* ²*Fort Valley State University, Fort Valley, GA.*

SYMPOSIUM

The DC Connection: Science Policy, Research Support, and the Professional Animal Scientist

Chair: Jerry Baker, Executive Director, Sigma Xi

Sponsors: Federation of Animal Science Societies (FASS) and Monsanto Company

Sagamore Ballroom 7

This session will help you discover the impacts of the federal budget proposals on major R&D agencies, examine historical R&D trends and their impact on US science and engineering, and discuss the political outlook for R&D in the appropriations process.

10:30 AM Introduction. Dr. Jerry Baker, *Sigma Xi.*

10:40 AM An insider: Serving on the personal staff of a member of Congress. Dr. Christy Oliver, *2007-2008 FASS Congressional Science Fellow.*

- 10:55 AM Deeper inside: Serving on the personal staff of a member of Congress. Dr. Murray Bakst, *2007-2008 FASS Congressional Science Fellow*.
- 11:20 AM Federal support for research in the 2009 budget. Mr. Kei Koizumi, *Director R&D Budget and Policy Program Directorate for Science and Policy Programs at AAAS*.
- 11:50 AM Telling the research funding story to someone that matters. Dr. Ashley B. Peterson, *Director Legislative Affairs, American Meat Institute*.
- 12:20 PM Questions and wrap-up. Dr. Jerry Baker, *Sigma Xi*.

SYMPOSIUM
Animal Behavior and Well-Being
Animal Welfare Standards – Who Decides and How?
Chair: Anna Butters-Johnson, Iowa State University
101–102

- 10:30 AM Welcome
- 10:35 AM 518 Animal welfare legislation in the European Union. D. Wilkins*, *WSPA, London, UK*.
- 11:15 AM 519 Animal welfare assurance programs in food production: A framework for assessing the options. D. Fraser*, *Animal Welfare Program, Faculty of Land and Food Systems and W. Maurice Young Centre for Applied Ethics, University of British Columbia, Vancouver, Canada*.
- 11:55 AM 520 Pressures to regulate animal welfare and food production in the USA. K. Johnson*, *Animal Agriculture Alliance, Arlington, VA*.
- 12:35 PM Concluding thoughts

Breeding and Genetics
Computational Issues in Genomic Analysis
Chair: Dorian Garrick, Iowa State University
109–110

- 10:30 AM 521 Genomic selection using low-density SNPs. D. Habier, J. C. M. Dekkers*, and R. L. Fernando, *Department of Animal Science and Center for Integrated Animal Genomics, Ames, IA*.
- 10:45 AM 522 Effects of allele frequency estimation on genomic predictions and inbreeding coefficients. P. M. VanRaden¹, M. E. Tooker*¹, and N. Gengler^{2,3}, ¹*USDA Animal Improvement Programs Laboratory, Beltsville, MD*, ²*Gembloux Agricultural University, Gembloux, Belgium*, ³*National Fund for Scientific Research, Brussels, Belgium*.
- 11:00 AM 523 Strategies to incorporate genomic prediction into population-wide genetic evaluations. N. Gengler*^{1,2} and P. M. VanRaden³, ¹*Gembloux Agricultural University, Gembloux, Belgium*, ²*National Fund for Scientific Research, Brussels, Belgium*, ³*USDA Animal Improvement Programs Laboratory, Beltsville, MD*.
- 11:15 AM 524 Selection of single nucleotide polymorphisms and genotype quality for genomic prediction of genetic merit in dairy cattle. G. R. Wiggans*¹, T. S. Sonstegard¹, P. M. VanRaden¹, L. K. Matukumalli^{1,2}, R. D. Schnabel³, J. F. Taylor³, F. S. Schenkel⁴, and C. P. Van Tassell¹, ¹*ARS, USDA, Beltsville, MD*, ²*George Mason University, Manassas, VA*, ³*University of Missouri, Columbia*, ⁴*University of Guelph, Guelph, ON, Canada*.
- 11:30 AM 525 Analysis of high dimension marker data in the presence of gene interactions: A machine learning approach. K. R. Robbins, J. K. Bertrand, and R. Rekaya*, *The University of Georgia, Athens*.
- 11:45 AM 526 Statistical design of validation studies for transcriptional profiling experiments. J. P. Steibel*¹, R. J. Tempelman¹, and G. J. M. Rosa², ¹*Michigan State University, East Lansing*, ²*University of Wisconsin, Madison*.
- 12:00 PM 527 Model selection in gene-specific mixed linear models for microarray data with application to joint analysis of multiple experiments. L. Qu, N. Bacciu*, D. Nettleton, and J. C. M. Dekkers, *Iowa State University, Ames*.
- 12:15 PM 528 Reconstruction of metabolic pathways for the cattle genome. S. Seo* and H. A. Lewin, *Institute for Genomic Biology, University of Illinois, Urbana*.

Breeding and Genetics
Current Issues in Swine Breeding
Chair: Eric Antoniou, University of Missouri
107–108

- 10:30 AM 529 Genetics of piglet survival: Additive, maternal and foster contributions. E. F. Knol*, M. J. M. Rutten, D. Roelofs-Prins, and J. W. M. Merks, *IPG, Institute for Pig Genetics B.V., Beuningen, the Netherlands.*
- 10:45 AM 530 Genetic parameters of farrowing survival in purebred and crossbred pigs. A. Cecchinato*¹, G. de los Campos², D. Gianola², L. Gallo¹, and P. Carnier¹, ¹*University of Padova, Legnaro, Padova, Italy,* ²*University of Wisconsin, Madison.*
- 11:00 AM 531 Heritability of longevity in Yorkshire females. M. D. Hoge*¹ and R. O. Bates², ¹*Western Illinois University, Macomb,* ²*Michigan State University, East Lansing.*
- 11:15 AM 532 Use of serial pig body weights for genetic improvement. B. Zumbach^{1,3}, I. Misztal*¹, C. Y. Chen¹, S. Tsuruta¹, W. O. Herring², T. Long², and M. Culbertson², ¹*University of Georgia, Athens,* ²*Smithfield Premium Genetics Group, Rose Hill, NC,* ³*Norsvin, Hamar, Norway.*
- 11:30 AM 533 Estimates of genetic correlations among growth traits including competition effects. C. Y. Chen*¹, R. K. Johnson¹, S. D. Kachman¹, and L. D. Van Vleck^{1,2}, ¹*University of Nebraska, Lincoln,* ²*ARS, USDA, US Meat Animal Research Center, Clay Center, NE.*
- 11:45 AM 534 Associations between body structure and overall leg action in crossbred gilts. M. Nikkilä*¹, K. Stalder¹, B. Mote¹, J. Lampe², B. Thorn³, M. Rothschild¹, A. Johnson¹, L. Karriker¹, and T. Serenius⁴, ¹*Iowa State University, Ames,* ²*Swine Graphics Enterprises, Webster City, IA,* ³*Newsham Genetics, West Des Moines, IA,* ⁴*FABA Breeding, Vantaa, Finland.*
- 12:00 PM 535 Genetic parameters for longitudinal feed intake and weight gain in Durocs. C. Y. Chen*¹, I. Misztal¹, S. Tsuruta¹, W. O. Herring², T. Long², and M. Culbertson², ¹*University of Georgia, Athens,* ²*Smithfield Premium Genetics Group, Rose Hill, NC.*
- 12:15 PM 536 Relationship between feed intake during growth and lactation in a mouse model. W. M. Rauw*¹, S. Hermes², K. Bunter², and L. Gomez Raya¹, ¹*University of Nevada, Reno,* ²*University of New England, Armidale, Australia.*

Dairy Foods
Cheese II
Chair: Kerry Kaylegian, Pennsylvania State University
120

- 10:30 AM 537 **ADSA Pioneer:** White cheese development. R. Richter*, *Texas A&M University, College Station.*
- 11:00 AM 538 Impact of the type of milk protein used to prepare starter media on properties of Mozzarella cheese. S. Govindasamy-Lucey*, B. Dosti, J. Jaeggi, M. Johnson, and J. Lucey, *University of Wisconsin, Madison.*
- 11:15 AM 539 Characterization of Sicilian Pecorino cheese by area of production. S. Carpino*¹, I. Schadt¹, S. La Terra¹, G. Belvedere¹, T. Rapisarda¹, and G. Licitra^{1,2}, ¹*CoRFiLaC, Regione Siciliana, Ragusa, Italy,* ²*D.A.C.P.A., Catania University, Catania, Italy.*
- 11:30 AM 540 Effect of brine composition on cheese physical properties in Ragusano cheese. N. Fucà*¹, L. Tuminello², S. La Terra², M. Caccamo², M. Manenti², G. Licitra^{1,2}, and D. J. McMahon³, ¹*D.A.C.P.A., Catania University, Catania, Italy,* ²*CoRFiLaC, Regione Siciliana, Ragusa, Italy,* ³*Utah State University, Logan.*
- 11:45 AM 541 Studies on various paneer based spreads. H. A. Kumar and H. G. R. Rao*, *Dairy Science College, KVAFSU, Hebbal, Bangalore, Karnataka, India.*

**Food Safety
Centennial Presentations
Chair: Todd Callaway, USDA-ARS Southern Plains Agricultural Research Center
204**

- 10:30 AM 542 **ASAS Centennial Presentation:** Developments and future outlook for preharvest food safety. S. P. Oliver*¹, D. A. Patel¹, T. R. Callaway², and M. E. Torrence³, ¹*The University of Tennessee, Knoxville*, ²*USDA/ARS Southern Plains Agricultural Research Center, College Station, TX*, ³*National Program Leader, Food Safety, USDA/ARS, Beltsville, MD*.
- 11:15 AM 543 **ASAS Centennial Presentation:** Developments and future outlook for postharvest food safety. J. Sofos*, *Colorado State University*.

**Forages and Pastures
Centennial Presentations
Chair: Ted McCollum, Texas AgriLife Extension
Sponsor: Mycogen
104**

- 10:30 AM 544 **ASAS Centennial Presentation:** Historical perspective on the advances in forage research. J. Burns*^{1,2}, ¹*USDA-ARS, Raleigh, NC*, ²*North Carolina State University, Raleigh*.
- 11:00 AM 545 **ASAS Centennial Presentation:** Research and extension needs in forage utilization in the future. F. M. Rouquette Jr.*¹, L. A. Redmon², G. E. Aiken³, G. M. Hill⁴, L. E. Sollenberger⁵, and J. Andrae⁶, ¹*Texas AgriLife Research, Texas A&M System, Overton, TX*, ²*Texas AgriLife Extension Service, Texas A&M System, College Station, TX*, ³*USDA-ARS Forage Animal Production Research Unit, Lexington, KY*, ⁴*University of Georgia, Tifton*, ⁵*University Florida, Gainesville*, ⁶*Clemson University, Clemson, SC*.

**Horse Species III
Chair: Jason Turner, New Mexico State University
Sagamore Ballroom 2**

- 10:30 AM 546 **ASAS Centennial Presentation:** History and future outlook of equine science teaching programs. C. H. Wood*, *University of Kentucky, Lexington*.
- 11:15 AM 547 Effect of ad libitum concentrate feeding on cribbing behavior in horses. T. R. Fenn*¹, C. A. McCall¹, C. E. Eckert¹, W. H. Brown¹, and W. H. McElhenney², ¹*Auburn University, Auburn, AL*, ²*Tuskegee University, Tuskegee, AL*.
- 11:30 AM 548 Epidemiologic and economic study of Hyperelastosis Cutis/HERDA in the quarter horse cutting industry. S. G. Tipton*¹, J. D. Anderson¹, T. S. Smith¹, N. J. Winand², P. R. Ryan¹, R. L. Linford¹, and A. M. Rashmir¹, ¹*Mississippi State University, Mississippi State*, ²*Cornell University, Ithaca, NY*.
- 11:45 AM 549 Gastric ulcer incidence rate and relationship to other parameters in 40 Standardbred racehorses. R. E. Cate*, B. D. Nielsen, C. I. O'Connor-Robison, H. S. Spooner, J. L. Feldpausch, and H. C. Schott II, *Michigan State University, East Lansing*.
- 12:00 PM 550 Use of slow-release urea to facilitate composting of horse manure. S. C. Dilling* and L. K. Warren, *University of Florida, Gainesville*.
- 12:15 PM 551 Phosphorus contribution of six equine bedding types. A. D. Woodward*, B. D. Nielsen, C. I. Robison-O'Connor, and J. M. Witherspoon, *Michigan State University, East Lansing*.

**Lactation Biology III
Chair: Steve Davis, ViaLactia Biosciences (NZ) Ltd.
Sagamore Ballroom 6**

- 10:30 AM 552 **ASAS Centennial Presentation:** Historical perspective on lactation biology. R. S. Kensinger*, *Oklahoma State University, Stillwater*.
- 11:15 AM 553 **ASAS Centennial Presentation:** Lactation biology for the 21st century. J. J. Loo*¹ and W. Cohick², ¹*University of Illinois, Urbana*, ²*Rutgers, The State University of New Jersey, New Brunswick*.

- 12:00 PM 554 The persistent milk yield response to frequent milking during early lactation is associated with persistent changes in mammary gene expression. E. H. Wall*, J. P. Bond, and T. B. McFadden, *University of Vermont, Burlington*.
- 12:15 PM 555 Gene network analysis in mammary and liver tissue of lactating mice fed trans10, cis12-CLA. A. K. G. Kadegowda*¹, A. Thatcher², L. S. Piperova¹, S. L. Rodriguez-Zas², R. A. Erdman¹, and J. J. Looor², ¹*University of Maryland, College Park*, ²*University of Illinois, Urbana*.

SYMPOSIUM

Meat Science and Muscle Biology

Postmortem Changes in Myofibrillar Protein and the Associated Contribution to Meat Quality

Chair: Giuseppe Bee, Agroscope Liebefeld-Posieux, ALP

Sponsor: European Association of Animal Production

Sagamore Ballroom 1

- 10:30 AM 556 Historical perspective of postmortem changes in myofibrillar proteins and their relationship to meat quality. F. C. Parrish*, *Iowa State University, Ames*.
- 10:45 AM 557 Calpain biology and postmortem meat tenderization. D. E. Goll*, J. P. Camou, J. A. Marchello, S. W. Novak, and V. F. Thompson, *University of Arizona, Tucson*.
- 11:15 AM 558 Relationship of postmortem changes in myofibrillar protein to meat quality. E. Huff-Lonergan* and S. Lonergan, *Iowa State University, Ames*.
- 11:45 AM 559 New methods to investigate changes in meat and myofibrillar proteins. E. Veiseth*, *Matforsk, Ås, Norway*.
- 12:15 PM 560 Post harvest processes that influence myofibrillar protein degradation and meat quality. M. N. Lund¹, R. Lametsch*¹, M. S. Hviid², and L. H. Skibsted¹, ¹*University of Copenhagen, Frederiksberg, Denmark*, ²*Danish Meat Research Institute, Roskilde, Denmark*.

SYMPOSIUM

Mixed Models Workshop

Session 1

Chair: Rob Tempelman, Michigan State University, Bruce Craig, Purdue University, and Larry Douglas, University of Maryland.

103

(Second session on 7/11, 8:30 AM – 12:30 PM; Interested parties should attend both sessions. Preregistration fee required.)

- 10:30 AM A professional development opportunity in the use of mixed models for the analysis of common experimental designs in the animal sciences. Topic areas include repeated measures analysis, mixed model analysis of categorical data, growth curve modeling using random coefficient, nonlinear, and spline models, and power and sample size determinations for comparing alternative designs for continuous and categorical responses. All presented applications will be based on the new SAS software procedure PROC GLIMMIX.

Nonruminant Nutrition

Distillers Grains for Swine

Chairs: L. Lee Southern, Louisiana State University, and Aaron Gaines, The Maschoffs Inc.

Sagamore Ballroom 4

- 10:30 AM 561 Digestible energy and metabolizable energy in distillers dried grains with solubles (DDGS) and enhanced DDGS. J. A. Soares*, H. H. Stein, V. Singh, and J. E. Pettigrew, *University of Illinois, Urbana*.
- 10:45 AM 562 Effect of deoiled corn dried distillers grains with solubles (solvent extracted) on growth performance and carcass characteristics of growing and finishing pigs. J. Y. Jacela*¹, J. M. DeRouche¹, S. S. Dritz¹, M. D. Tokach¹, R. D. Goodband¹, J. L. Nelssen¹, J. M. Benz¹, K. Prusa², R. C. Thaler³, and D. E. Little⁴, ¹*Kansas State University, Manhattan*, ²*Iowa State University, Ames*, ³*South Dakota State University, Brookings*, ⁴*DairyNet Inc., Brookings, SD*.
- 11:00 AM 563 Effect of dried corn distillers grains with solubles (DDGS) on growth performance of growing-finishing gilts with previous exposure to DDGS in the nursery. T. E. Burkey*, R. Moreno, E. E. Carney, and P. S. Miller, *University of Nebraska, Lincoln*.

- 11:15 AM 564 Alternating dietary inclusion of corn dried distillers grains with solubles did not impact growth performance of finishing pigs. N. R. Augspurger*¹, G. I. Petersen², J. D. Spencer¹, and E. N. Parr¹, ¹JBS United Inc., Sheridan, IN, ²University of Illinois, Urbana.
- 11:30 AM 565 Effects of excess dietary crude protein from soybean meal and distillers dried grains with solubles in diets for finishing pigs. S. C. Williams*, J. D. Hancock, C. Feoli, S. Issa, and T. L. Gugle, *Kansas State University, Manhattan.*

**Physiology and Endocrinology
Enhancing Reproductive Efficiency
Chair: Mark Estienne, Virginia Tech
205**

- 10:30 AM 566 **ASAS Centennial Presentation:** Future research in physiology and endocrinology. G. E. Seidel*, *Colorado State University, Fort Collins.*
- 11:00 AM 567 Effect of antioxidants on oxidative stress during maturation and *in vitro* culture of pig embryos. B. D. Whitaker* and J. W. Knight, *Virginia Tech, Blacksburg.*
- 11:15 AM 568 Glycomic analysis of saccharides that bind porcine sperm. E. D. Collins, C. Korneli, and D. J. Miller*, *University of Illinois, Urbana.*
- 11:30 AM 569 The relationship between sperm nuclear shape and boar fertility using Fourier harmonics. K. L. Willenburg*¹, K. J. Rozeboom², and J. J. Parrish¹, ¹University of Wisconsin, Madison, ²ReproQuest, LLC, Fitchburg, WI.
- 11:45 AM 570 Effect of number of motile, frozen-thawed boar sperm and number of inseminations on fertility in post-pubertal gilts. K. Spencer*¹, P. Purdy², H. Blackburn², S. Spiller², C. Welsh², T. Stewart³, S. Breen¹, J. Taibl¹, B. Yantis¹, and R. Knox¹, ¹University of Illinois, Urbana, ²National Animal Germplasm Program, ARS, USDA, Fort Collins, CO, ³Purdue University, West Lafayette, IN.
- 12:00 PM 571 Comparison of exogenous porcine FSH/LH to PMSG/hCG for inducing follicular development and fertility in prepubertal gilts. S. M. Breen* and R. V. Knox, *University of Illinois, Urbana.*

**Physiology and Endocrinology
Health and Immunology
Chair: Ricardo Chebel, University of California
206**

- 10:30 AM 572 Energy-related metabolites and hormones as surrogate markers for chronic wasting disease in cervids. J. R. Olsen*¹, R. A. Bessen¹, T. Rocke², S. D. Wright², J. D. Bailey¹, and J. G. Berardinelli¹, ¹Montana State University, Bozeman, ²USGS National Wildlife Health Center, Madison, WI.
- 10:45 AM 573 Intrauterine detection and *in vitro* characterization of *Escherichia coli*-Xen14: A model for monitoring infections of the bovine reproductive tract. J. Curbelo*, K. Moulton, S. Laird, D. Moore, S. Bowers, and S. Willard, *Mississippi State University, Mississippi State.*
- 574 Withdrawn by author.
- 11:00 AM 575 Early weaning alters the acute phase immune response to an endotoxin challenge in beef cattle. J. A. Carroll*¹, J. D. Arthington², and C. C. Chase Jr.³, ¹Livestock Issues Research Unit, USDA-ARS, Lubbock, TX, ²University of Florida-IFAS, Range Cattle Research and Education Center, Ona, FL, ³SubTropical Agricultural Research Station, USDA-ARS, Brooksville, FL.
- 11:15 AM 576 Relationship of temperament and circulating concentrations of cortisol, total protein, and immunoglobulin G with growth in Angus crossbred calves. K. R. Parker*¹, S. T. Willard², A. N. Musselwhite², R. D. Randel³, T. H. Welsh⁴, and R. C. Vann¹, ¹MAFES/Brown Loam Experiment Station, Raymond, MS, ²Mississippi State University, Starkville, ³Texas Agrilife Research, Overton, TX, ⁴Texas A&M University, College Station.
- 11:30 AM 577 Influence of bovine temperament, transportation, and lipopolysaccharide challenge on ultrasound body composition traits. R. C. Vann*¹, N. C. Burdick², J. A. Carroll³, R. D. Randel⁴, S. T. Willard⁵, L. C. Caldwell², J. W. Dailey³, L. E. Hulbert³, A. N. Loyd², and T. H. Welsh Jr.², ¹MAFES-Mississippi State University, Raymond, ²AgriLife Research, College Station, TX, ³USDA-ARS Livestock Issues Research Unit, Lubbock, TX, ⁴AgriLife Research, Overton, TX, ⁵Mississippi State University, Starkville.

- 11:45 PM 578 Influence of temperament on behavioral, physiological and endocrine responses of cattle to a provocative challenge with lipopolysaccharide (LPS). L. H. Hulbert^{*1}, J. A. Carroll¹, J. W. Dailey¹, R. D. Randel², T. H. Welsh Jr.³, L. C. Caldwell^{2,3}, N. C. Burdick³, R. C. Vann⁴, and S. T. Willard⁵, ¹*Livestock Issues Research Unit, USDA-ARS, Lubbock, Texas*, ²*Texas AgriLife Research and Extension Center, Texas A&M System, Overton*, ³*Texas AgriLife Research, Texas A&M System, College Station*, ⁴*MAFES, Mississippi State University, Raymond*, ⁵*MAFES, Mississippi State University, Mississippi State*.

Ruminant Nutrition
Carbohydrate Byproducts – Dairy
Chair: Allen Young, Utah State University
Sagamore Ballroom 5

- 10:30 AM 579 Feeding two corn milling co-products to dairy cattle: Intake and milk production. A. M. Gehman^{*} and P. J. Kononoff, *University of Nebraska, Lincoln*.
- 10:45 AM 580 Endosperm type of dry ground corn grain affects ruminal and total tract digestion of starch in lactating dairy cows. M. S. Allen^{*}, R. A. Longuski, and Y. Ying, *Michigan State University, East Lansing*.
- 11:00 AM 581 Effects of two dietary non-fiber carbohydrate levels on ruminal fermentation and animal metabolism of lactating cows. M. Blanch^{*1}, S. Calsamiglia¹, M. Devant², and A. Bach^{2,3}, ¹*UAB, Spain*, ²*IRTA, Spain*, ³*ICREA, Spain*.
- 11:15 AM 582 Effects of feeding three types of corn milling co-products on ruminal fermentation and digestibility in lactating Holstein dairy cattle. J. M. Kelzer^{*1}, P. J. Kononoff¹, A. M. Gehman¹, K. Karges², and M. L. Gibson², ¹*University of Nebraska, Lincoln*, ²*Dakota Gold Research Association, Sioux Falls, SD*.
- 11:30 AM 583 Evaluation of low starch diets for lactating Holstein dairy cattle. H. M. Dann^{*1}, K. W. Cotanch¹, P. D. Krawczel¹, C. S. Mooney¹, R. J. Grant¹, and T. Eguchi², ¹*William H. Miner Agricultural Research Institute, Chazy, NY*, ²*Zen-Noh National Federation of Agricultural Cooperative Associations, Tokyo, Japan*.
- 11:45 AM 584 Ground vs steam-rolled barley grain for lactating cows: A clarification into conventional beliefs. A. Soltani¹, G. R. Ghorbani¹, M. Alikhani¹, and A. Nikkiah^{*2}, ¹*Isfahan University of Technology, Isfahan, Iran*, ²*University of Illinois, Urbana*.
- 12:00 PM 585 Replacement of starch from corn with non-forage fiber from distillers grains in diets of lactating dairy cows. S. D. Ranathunga^{*}, K. F. Kalscheur, A. R. Hippen, and D. J. Schingoethe, *South Dakota State University, Brookings*.

Ruminant Nutrition
Nitrogen Sources and Utilization
Chair: Paul Kononoff, University of Nebraska
Sagamore Ballroom 3

- 10:30 AM 586 Effects of feeding triticale dried distillers grains with solubles as a N source on productivity of lactating dairy cows. M. Oba^{*} and T. D. Whyte, *University of Alberta, Edmonton, AB, Canada*.
- 10:45 AM 587 Nutritional profile of distillers dried grains with solubles from 40 ethanol plants. Y. Zhang^{*}, J. Sido, and B. Wrenn, *National Corn-to-Ethanol Research Center*.
- 11:00 AM 588 Digestibility of rumen undegraded amino acids estimated in cecectomized roosters and the modified three-step *in vitro* procedure. S. E. Boucher^{*1}, S. Calsamiglia², M. D. Stern³, C. M. Parsons⁴, and C. G. Schwab¹, ¹*University of New Hampshire, Durham*, ²*Universitat Autònoma de Barcelona, Bellaterra, Spain*, ³*University of Minnesota, St. Paul*, ⁴*University of Illinois, Urbana*.
- 11:15 AM 589 In situ degradation characteristics of extruded-expelled cottonseed meal-based supplements. S. J. Winterholler^{*}, T. K. Dye, C. P. McMurphy, C. J. Richards, and D. L. Lalman, *Oklahoma State University, Stillwater*.
- 11:30 AM 590 Feeding two corn milling co-products to dairy cattle: Nutrient digestibility, purine derivatives excretion, and nitrogen utilization. A. M. Gehman^{*} and P. J. Kononoff, *University of Nebraska, Lincoln*.
- 11:45 AM 591 Milk urea concentration as an indicator of ammonia emission from dairy cow houses in a situation with restricted grazing. G. van Duinkerken^{*1}, M. C. J. Smits¹, G. André¹, P. F. G. Vereijken², L. B. J. Sebek¹, A. Bannink¹, and J. Dijkstra¹, ¹*Wageningen University and Research Center, Lelystad, the Netherlands*, ²*Wageningen University and Research Center, Wageningen, the Netherlands*.
- 12:00 PM 592 A meta-analysis of the effects of protein concentration and degradability on milk N efficiency in dairy cows. P. Huhtanen^{*1}, A. N. Hristov², and M. Rinne³, ¹*Cornell University, Ithaca, NY*, ²*Pennsylvania State University, State College*, ³*MTT-Agrifood Finland, Jokioinen, Finland*.
- 593 Withdrawn by author.

SYMPOSIUM
Swine Species
Intestinal Barrier Function
Chair: Mark E. Wilson, Zinpro Corporation
Sponsors: European Association of Animal Production and Newsham Genetics
105–106

- 10:30 AM 594 Stress-induced intestinal barrier dysfunction and its effects. G. P. Lambert*, *Creighton University*.
- 11:15 AM 595 Dietary plasma proteins and the barrier functions of the intestinal mucosa. M. Moretó* and A. Pérez-Bosque, *Universitat de Barcelona, Barcelona, Spain*.
- 12:00 PM 596 Strategies to minimize inflammatory taxation on animal performance. M. E. Cook*, *University of Wisconsin, Madison*.

Forages and Pastures III
Chair: Ted McCollum, Texas AgriLife Extension
104

- 11:30 AM 597 Performance by spring- and fall-calving cows grazing with full access, limited access, or no access to endophyte-infected tall fescue. J. Caldwell*¹, K. Coffey¹, D. Philipp¹, J. Jennings³, D. Hubbell, III¹, T. Hess¹, D. Kreider¹, M. Looper², M. Popp¹, M. Savin¹, and C. Rosenkrans Jr.¹, ¹*University of Arkansas, Fayetteville*, ²*USDA-ARS, Booneville, AR*, ³*Cooperative Extension Service, Little Rock, AR*.
- 11:45 AM 598 Warm-season legume haylage or soybean meal supplementation effects on the performance of lambs. J. L. Foster*¹, A. T. Adesogan¹, J. N. Carter¹, L. E. Sollenberger¹, A. R. Blount¹, R. O. Myer¹, S. C. Phatak², S. C. Kim¹, T. Kang¹, M. Brew¹, and K. G. Arriola¹, ¹*University of Florida, Gainesville*, ²*University of Georgia, Athens*.
- 12:00 PM 599 Forage species alters animal performance, carcass quality, and fatty acid composition of forage-finished beef produced in summer months. J. Schmidt*, J. Andrae, S. Duckett, M. Miller, and S. Ellis, *Clemson University, Clemson, SC*.
- 12:15 PM 600 Performance of finishing steers on corn silage or low grain sorghum silage with corn oil supplementation. V. A. Corriher*, G. M. Hill, and B. G. Mullinix Jr., *University of Georgia, Tifton*.

SYMPOSIUM
ADSA Production Division Symposium
Dairy Replacement Heifers: Cost-Effective Strategies from Weaning to Calving
Chair: Leo Timms, Iowa State University
Sponsor: European Association of Animal Production
Sagamore Ballroom 2

- 2:00 PM Introduction. L. Timms, *Iowa State University, Ames*.
- 2:05 PM 601 Potential and limitations associated with manipulating dairy replacement heifer nutrition programs. P. C. Hoffman*, *University of Wisconsin, Madison*.
- 2:45 PM 602 Using growth monitoring in heifer management and research. A. Bach*^{1,2}, J. Ahedo³, and A. Kertz⁴, ¹*IRTA-Unitat de Remugants, Barcelona, Spain*, ²*ICREA, Barcelona, Spain*, ³*Rancho Las Nieves, Mallen, Spain*, ⁴*ANDHILL LLC, St. Louis, MO*.
- 3:25 PM Break
- 3:40 PM 603 Strategies for reproductive success in replacement heifers. R. L. Nebel*¹, J. M. DeJarnette¹, K. E. Hall², I. D. Peeler², and C. E. Marshall¹, ¹*Select Sires Inc., Plain City, OH*, ²*Virginia Polytechnic Institute and State University, Blacksburg*.
- 4:20 PM 604 Raising healthy dairy replacements: How we get the job done. G. Goodell*, *The Dairy Authority LLC, Greeley, CO*.

Animal Health VI
Chair: KC Olson, Kansas State University
Sagamore Ballroom 1

- 2:00 PM 605 **ASAS Centennial Presentation:** The promise of proteomics in animal science. J. D. Lippolis* and T. A. Reinhardt, *National Animal Disease Center, USDA-ARS, Ames, IA.*
- 3:00 PM 606 Periparturient liver and mammary tissue-explant gene expression is responsive to bacterial lipopolysaccharide (LPS) *in vitro*: A model to study tissue-specific genomic responses to infection. M. Mukesh*, D. E. Graugnard, M. Bionaz, and J. J. Loor, *University of Illinois, Urbana.*
- 3:15 PM 607 Effects of long-chain fatty acids on concanavalin A-induced cytokine production by bovine peripheral blood mononuclear cells. C. Caldari-Torres*, M. Perdomo, and L. Badinga, *University of Florida, Gainesville.*
- 3:30 PM 608 **ASAS Centennial Presentation:** Contributions in the *Journal of Animal Science* to understanding cattle metabolic and digestive disorders. J. T. Vasconcelos and M. L. Galyean*, *Texas Tech University, Lubbock.*
- 4:00 PM 609 Neutrophil function in response to level of dietary energy pre-partum and post-partum inflammatory challenge in dairy cows. D. E. Graugnard*, M. Bionaz, M. Mukesh, K. M. Moyes, J. L. Salak-Johnson, J. K. Drackley, and J. J. Loor, *University of Illinois, Urbana.*
- 4:15 PM 610 An immuno-evaluation system for anti-inflammatory probiotics using originally established porcine epitheliocyte (PIE) cells. T. Shimazu*, M. Tohno, M. Moue, H. Aso, T. Saito, and H. Kitazawa, *Tohoku University, Sendai, Japan.*

Breeding and Genetics
Breeding for Milk Quality and Test-Day Model Applications
Chair: Nicolas Gengler, Gembloux Agricultural University
Sagamore Ballroom 7

- 2:00 PM 611 Quantitative trait loci for milk-fat composition in Dutch Holstein Friesians. A. Schennink*¹, W. M. Stoop¹, H. Bovenhuis¹, J. M. L. Heck², P. D. Koks¹, M. H. P. W. Visker¹, and J. A. M. van Arendonk¹, ¹*Animal Breeding and Genomics Centre, Wageningen University, Wageningen, the Netherlands*, ²*Dairy Science and Technology Group, Wageningen University, Wageningen, the Netherlands.*
- 2:15 PM 612 Genetic parameters of saturated and monounsaturated fatty acids estimated by test-day model in Walloon dairy cattle. H. Soyeurt*¹, C. Bastin¹, P. Dardenne², F. Dehareng², and N. Gengler^{1,3}, ¹*Gembloux Agricultural University, Gembloux, Belgium*, ²*Agricultural Walloon Research Centre, Gembloux, Belgium*, ³*National Fund for Scientific Research, Brussels, Belgium.*
- 2:30 PM 613 Genetic parameters of stearoyl coenzyme-A desaturase 9 activity estimated by test-day model. V. M.-R. Arnould*¹, N. Gengler^{1,2}, and H. Soyeurt¹, ¹*Gembloux Agricultural University, Gembloux, Belgium*, ²*National Fund for Scientific Research, Brussels, Belgium.*
- 2:45 PM 614 Relationship between lactoferrin, minerals, and somatic cells in bovine milk. H. Soyeurt*¹, V. M.-R. Arnould¹, D. Bruwier¹, P. Dardenne², J.-M. Romnee², and N. Gengler^{1,3}, ¹*Gembloux Agricultural University, Gembloux, Belgium*, ²*Agricultural Walloon Research Centre, Gembloux, Belgium*, ³*National Fund for Scientific Research, Brussels, Belgium.*
- 3:00 PM 615 Genetic variation in milk protein composition and the effects of genetic variants on the concentration of individual proteins. J. M. L. Heck*¹, A. Schennink², G. C. B. Schopen², H. J. F. van Valenberg¹, H. Bovenhuis², M. H. P. W. Visker², J. A. M. van Arendonk², and A. C. M. van Hooijdonk¹, ¹*Dairy Science and Technology, Wageningen University, Wageningen, the Netherlands*, ²*Animal Breeding and Genomics Centre, Wageningen University, Wageningen, the Netherlands.*
- 3:15 PM 616 Effect of casein genotypes on heritability of milk coagulation ability in Holstein Friesian cows. M. Cassandro*¹, R. Dal Zotto¹, M. De Marchi¹, A. Comin¹, S. Chessa², and G. Bittante¹, ¹*Department of Animal Science, University of Padova, Legnaro, Padova, Italy*, ²*Department of Veterinary Science and Technology for Food Safety, University of Milano, Italy.*
- 3:30 PM Break
- 3:45 PM 617 Modeling extended lactation curves in Italian Holsteins. R. Steri¹, F. Canavesi², E. Nicolazzi², G. Gaspa¹, and N. P. P. Macciotta*¹, ¹*Dipartimento di Scienze Zootecniche, Università di Sassari, Sassari, Italia*, ²*Associazione Nazionale Allevatori Frisone Italiana, Cremona, Italia.*
- 4:00 PM 618 Issues in modelling lactation curves with regression splines. N. P. P. Macciotta*¹, F. Miglior^{2,3}, A. Cappio-Borlino¹, and L. R. Schaeffer⁴, ¹*Dipartimento di Scienze Zootecniche, Università di Sassari, Sassari, Italia*, ²*Dairy and Swine Research and Development Centre, Agriculture and Agri-Food Canada, Sherbrooke, QC, Canada*, ³*Canadian Dairy Network, Guelph, ON, Canada*, ⁴*CGIL, Department of Animal and Poultry Science, University of Guelph, Guelph, ON, Canada.*

- 4:15 PM 619 Improving stability of test day model bull proofs. F. Canavesi, S. Biffani*, E. L. Nicolazzi, and R. Finocchiaro, *ANAFI, Cremona, Italy*.
- 4:30 PM 620 Genetic parameters for milk, fat and protein in Holsteins using a multiple-parity test day model that accounts for heat stress. I. Aguilar*^{1,2}, I. Misztal¹, and S. Tsuruta¹, ¹*University of Georgia, Athens, GA*, ²*Instituto Nacional de Investigación Agropecuaria, Las Brujas, Uruguay*.
- 4:45 PM 621 An alternative model to accommodate very large numbers of traits in random regression test-day models. N. Gengler*^{1,2}, ¹*Gembloux Agricultural University, Gembloux, Belgium*, ²*National Fund for Scientific Research, Brussels, Belgium*.

Breeding and Genetics
Current Issues in Beef Cattle Breeding
Chair: Janice Rumph, Michigan State University
Sagamore Ballroom 4

- 2:00 PM 622 **ASAS Centennial Presentation:** Animal breeding and the *Journal of Animal Science*: A century of co-evolution. W. Hohenboken*^{1,2}, ¹*Virginia Polytechnic Institute and State University, Blacksburg*, ²*Oregon State University, Corvallis*.
- 2:30 PM 623 Residual feed intake heritability and phenotypic correlations of central tested Simmental bulls. W. C. Rutherford*, L. A. Kriese-Anderson, S. V. Free, M. S. Hittle, and J. K. Grubbs, *Auburn University, Auburn, AL*.
- 2:45 PM 624 Estimates of genetic variation for feed intake and other characteristics in growing beef cattle. K. M. Rolfe*¹, M. K. Nielsen¹, C. L. Ferrell², and T. G. Jenkins², ¹*University of Nebraska, Lincoln*, ²*US Meat Animal Research Center, Clay Center, NE*.
- 3:00 PM 625 Analysis of beef cattle growth with a Kalman filter. S. Forni*, D. Gianola, G. J. M. Rosa, G. de los Campos, and K. A. Weigel, *University of Wisconsin, Madison*.
- 3:15 PM 626 Bayesian estimation of the covariance between permanent maternal and temporary environmental effects for weaning weight in beef cattle. R. Cantet*^{1,2}, ¹*University of Buenos Aires, Buenos Aires, Argentina*, ²*CONICET, Argentina*.
- 3:30 PM Break
- 3:45 PM 627 **ASAS Centennial Presentation:** Future needs in animal breeding. R. D. Green*, *Pfizer Animal Genetics, Sutton, NE*.
- 4:15 PM 628 Genetic trends for production traits of the Montana Line 4 Hereford herd. J. M. Rumph*¹, D. D. Kress², K. C. Davis², D. C. Anderson^{2,3}, H. C. Van Wagoner³, and D. L. Boss³, ¹*Michigan State University, Lake City*, ²*Montana State University, Bozeman*, ³*Montana State University, Havre*.
- 4:30 PM 629 Clustering of herds to account for heterogeneous variance of docility scores in Limousin cattle. D. W. Beckman* and D. J. Garrick, *Iowa State University, Ames*.
- 4:45 PM 630 Estimation of breed and heterosis effects for growth and carcass traits in cattle using published crossbreeding studies. J. L. Williams*, R. Rekaya, and J. K. Bertrand, *University of Georgia, Athens*.

SYMPOSIUM
Companion Animals
Exotic Animal Nutrition
Chair: Nancy A. Irlbeck, Colorado State University
Sponsors: Hill's Science Diet, Iams, and Nestle Purina
104

- 2:00 PM Introduction – Welcome and Why an Exotic Animal Symposium?
- 2:10 PM 631 Zoo nutrition: In the beginning. D. E. Ullrey*, *Michigan State University, East Lansing*.
- 2:40 PM 632 Forty-plus years of exotic animal management – A director's perspective. L. Simmons*, *Omaha's Henry Doorly Zoo, Omaha, NE*.
- 3:00 PM 633 Amphibians and reptiles – Trials and tribulations. C. Dikeman*, *Omaha's Henry Doorly Zoo, Omaha, NE*.
- 3:20 PM 634 Carnivores: From mouse to moose. E. S. Dierenfeld*, *Saint Louis Zoo, St. Louis, MO*.

- 3:40 PM 635 Comparative avian nutrition – Lessons learned from domesticated poultry. E. A. Koutsos*, *Mazuri Exotic Animal Nutrition/PMI Nutrition International LLC*.
- 4:00 PM 636 Ungulates: Are they cows with long necks? M. S. Edwards*, *California Polytechnic State University, San Luis Obispo*.
- 4:20 PM 637 Omnivores – Models of metabolism. J. Williams*, *Indianapolis Zoological Society, Indianapolis, IN*.
- 4:40 PM Summary – What is the Future in Exotic Animal Nutrition?

SYMPOSIUM
Contemporary and Emerging Issues
Healthfulness of Dairy and Meat Products
Chair: Edward Stanisiewski, Pfizer
Sponsor: Elanco Animal Health
Sagamore Ballroom 3

- 2:00 PM 638 The current nutrition environment: Beef lipids in perspective. S. McNeill*, *National Cattlemen's Beef Association, Centennial, CO*.
- 2:45 PM 639 Role of animal protein in optimal health. N. Rodriguez*, *University of Connecticut, Storrs*.
- 3:30 PM 640 Milk fat and risk of cardiovascular disease. D. E. Bauman*¹ and A. L. Lock², ¹*Cornell University, Ithaca, NY*, ²*University of Vermont, Burlington*.
- 4:15 PM 641 Milk fat globule membrane components and their interactions with lactic acid bacteria. R. Jimenez-Flores*, *California Polytechnic State University, San Luis Obispo*.

SYMPOSIUM
Dairy Foods
Emerging Nonthermal Food Processing Technologies- Their Potential in Dairy Systems
Chair: Geoffrey Smithers, Food Science Australia
Sponsor: European Association of Animal Production
121

- 2:00 PM 642 Introduction to nonthermal processing technologies and dairy systems. G. Smithers*, C. Versteeg, and J. Sellahewa, *Food Science Australia, Melbourne & Sydney, Australia*.
- 2:15 PM 643 Dairy proteins under pressure: Static high pressure processing to modulate the functionality of dairy proteins. P. Udabage*¹, M. A. Augustin¹, I. R. McKinnon², A. Kelly³, and C. Versteeg¹, ¹*CSIRO Food Futures Flagship, Food Science Australia, Werribee, Victoria, Australia*, ²*Monash University, Victoria, Australia*, ³*University College Cork, Cork, Ireland*.
- 2:40 PM 644 High pressure treatment and bovine milk proteins. A. L. Kelly*¹, K. Kothari¹, A. Simpson², D. M. Mulvihill¹, P. M. Kelly², T. P. Guinee², and T. P. Beresford², ¹*University College Cork, Cork, Ireland*, ²*Moorepark Food Research Centre, Fermoy, Co. Cork, Ireland*.
- 3:05 PM 645 Microstructural effects in thermo-sonicated yogurt and other dairy products: Understanding and exploiting the science. G. V. Barbosa-Canovas* and D. Bermudez-Aguirre, *Washington State University, Pullman*.
- 3:30 PM 646 Membrane and other processing technologies for dairy fluids: Effectiveness of ultrasound in enhancing productivity. R. Mawson¹, S. Kentish², M. Ashokkumar², S. Udabage¹, and M. Golding*¹, ¹*Food Science Australia, Werribee, Victoria, Australia*, ²*University of Melbourne, Melbourne, Victoria, Australia*.
- 3:55 PM 647 Microbial safety and bioactive efficacy: Effectiveness of pulsed electric field processing of dairy fluids. J. Wan*¹, K. Shamsi², Q. Sui³, D. Bermudez-Aguirre⁴, C. P. Dunne⁵, G. Barbosa-Canovas⁴, and C. Versteeg¹, ¹*Innovative Foods Center, Food Science Australia, Melbourne, Australia*, ²*RMIT University, Melbourne, Australia*, ³*University of Melbourne, Melbourne, Australia*, ⁴*Washington State University, Pullman*, ⁵*US Army Natick Soldier Center, MA*.
- 4:20 PM 648 High pressure processing of colostrum. T. Carroll*, *Fonterra Co-operative Group Ltd., Palmerston North, New Zealand*.
- 4:40 PM 649 Enhancing the quality of whey protein functionality using high pressure. S. Clark*, X. Liu, S.-Y. Lim, J. Chauhan, and C. Padiernos, *Washington State University, Pullman*.

Extension Education
All Species
Chair: Jodi Sterle, Texas A&M University
206

- 2:00 PM 650 A tool to optimize the length of time a boar is in an AI stud. J. S. Fix*¹, M. T. See¹, and D. S. Casey², ¹North Carolina State University, Raleigh, ²Pig Improvement Company, Hendersonville, TN.
- 2:15 PM 651 State funded genetic enhancement programs: An example from Tennessee. M. L. Spangler*¹ and D. Kirkpatrick², ¹University of Nebraska, Lincoln, ²University of Tennessee, Knoxville.
- 2:30 PM 652 Transferring technology to beef producers in Missouri to facilitate expanded use of estrus synchronization and AI. D. C. Busch*¹, N. R. Leitman¹, D. A. Mallory¹, J. F. Bader², D. J. Wilson¹, S. E. Pooock¹, M. F. Smith¹, and D. J. Patterson¹, ¹University of Missouri, Columbia, ²Merial Limited, Fulton, MO.
- 2:45 PM 653 Evaluation of on-farm pasteurization systems. J. A. Elizondo-Salazar*^{1,2}, C. F. Vargas-Rodríguez², S. C. Donaldson¹, B. M. Jayarao¹, and A. J. Heinrichs¹, ¹The Pennsylvania State University, University Park, ²Estación Experimental Alfredo Volio Mata, Costa Rica.
- 3:00 PM 654 Managing the newly created Livestock Gross Margin for Dairy (LGM-Dairy) insurance under seasonal climate variability. V. E. Cabrera*¹ and D. Solis², ¹New Mexico State University, Clovis, ²University of Miami, Tallahassee, FL.
- 3:15 PM 655 A stochastic simulation model for assessment of investments in Precision Dairy Farming technologies: Model enhancements and utility demonstration. J. M. Bewley*¹, M. D. Boehlje¹, A. W. Gray¹, H. Hogeveen², S. D. Eicher³, and M. M. Schutz¹, ¹Purdue University, West Lafayette, IN, ²Utrecht University, Utrecht, the Netherlands, ³USDA-ARS, West Lafayette, IN.
- 3:30 PM 656 Assessing the potential value of automated body condition scoring through stochastic simulation. J. M. Bewley*¹, M. D. Boehlje¹, A. W. Gray¹, H. Hogeveen², S. D. Eicher³, and M. M. Schutz¹, ¹Purdue University, West Lafayette, IN, ²Utrecht University, Utrecht, the Netherlands, ³USDA-ARS, West Lafayette, IN.
- 3:45 PM 657 Analysis of corn distillers grain for expansion of the FeedAC database to include pre-digestion fractionated high protein distillers' grains (HP-DG). T. R. Johnson*¹, J. Goodson², D. P. Casper³, T. J. Applegate⁴, K. E. Ilieji⁴, B. T. Ulrich⁵, F. P. Lundy III⁶, and C. G. Schwab⁷, ¹Dairy Nutrient Management Systems, Noblesville, IN, ²Degussa Inc., Kennesaw GA, ³Agri-King Inc., Fulton, IL, ⁴Purdue University, West Lafayette, IN, ⁵Mor Technology LLC., Metropolis, IL, ⁶FEED AC Inc., Homer, NY, ⁷University of NH, Durham, NH.
- 4:00 PM 658 Development of a software to calculate pollutant emissions, resources consumption and best available techniques effects from Spanish farms. C. Pineiro*¹, G. Montalvo², M. A. Garcia², M. Herrero³, and M. Biegeriego⁴, ¹PigCHAMP Pro Europa, S.A., Segovia, Spain, ²Tragsega, S.A., Madrid, Spain, ³Feaspor, Segovia, Spain, ⁴Spanish Ministry of Agriculture, Fisheries and Food, Madrid, Spain.
- 4:15 PM 659 Using an iClicker audience response system to engage participants in extension programs. J. Andrae*, Clemson University, Clemson, SC.

Growth and Development
General Topics
Chairs: Anthony Capuco, USDA-ARS, and Aubrey Schroeder, Elanco
204

- 2:00 PM 660 Ovariectomy alters myoepithelial cell populations in the prepubertal bovine mammary gland. K. E. Ballagh¹, N. Korn¹, L. Riggs², R. M. Akers³, and S. Ellis*¹, ¹Clemson University, Clemson, SC, ²Louisiana State University, Baton Rouge, ³Virginia Polytechnic Institute and State University, Blacksburg.
- 2:15 PM 661 Dihydroxy vitamin D affects the myogenic potential of porcine satellite cells. A. Qu¹, R. P. Rhoads², and C. H. Stahl*³, ¹Iowa State University, Ames, ²University of Arizona, Tucson, ³North Carolina State University, Raleigh.
- 2:30 PM 662 Calpain and calpastatin mRNA expressions in skeletal muscle are highly correlated with protein accretion activities in neonatal pigs. Z. Li*¹, B. Zhao¹, X. Yang², M. Z. Fan², and J. Yang¹, ¹University of Hawaii, Honolulu, ²University of Guelph, Guelph, ON, Canada.
- 2:45 PM 663 A low-fat liquid diet decreases AMPK and increases mTOR phosphorylation in skeletal muscle of 10-day-old pigs. W. Oliver* and J. Miles, USDA, ARS, US Meat Animal Research Center, Clay Center, NE.
- 3:00 PM 664 Media components including exogenous lipid and PPAR-γ agonists influence the differentiation of primary bovine adipocytes *in vitro*. A. J. Lengi and B. A. Corl*, Virginia Polytechnic Institute and State University, Blacksburg.

- 3:15 PM 665 Basal expression of four SLC1 (Na⁺-dependent glutamate transporter) mRNA by small intestinal epithelia of beef cattle differs and is altered by ruminal and abomasal infusion of starch hydrolysate. S. F. Liao*, E. S. Vanzant, D. L. Harmon, K. R. McLeod, J. A. Boling, and J. C. Matthews, *University of Kentucky, Lexington.*
- 3:30 PM 666 Dry matter intake based on birth weight as weaning criterion in Brown Swiss calves. B. Saremi*, A. Foroughi, and A. Rahimi, *Education Center of Jihad-e Agriculture, Mashhad, Khorasan-e Razavi, Iran.*
- 3:45 PM 667 Effects of plane of nutrition and bioavailable trace minerals on growth of transported male dairy calves. J. S. Osorio*¹, J. K. Drackley¹, R. L. Wallace¹, D. Rincker¹, D. J. Tomlinson², and T. J. Earleywine³, ¹*University of Illinois, Urbana*, ²*Zinpro Performance Minerals, Jeffersonton, VA*, ³*Land O'Lakes Animal Milk Products Inc., Madison, WI.*
- 4:00 PM 668 Relationship of ghrelin and leptin with growth performance and carcass composition of beef cattle. J. S. Jennings*¹, R. H. Pritchard¹, K. W. Bruns¹, A. Trenkle², D. H. Keisler³, J. A. Daniel⁴, and A. E. Wertz-Lutz³, ¹*South Dakota State University, Brookings*, ²*Iowa State University, Ames*, ³*University of Missouri, Columbia*, ⁴*Berry College, Rome, GA.*
- 4:15 PM 669 Carcass quality and relative content of glutamate metabolizing enzymes and transporters differ in Polypay and percentage Polypay-White Dorper lambs. A. K. Lunsford*, K. R. Brown, S. F. Liao, D. K. Aaron, J. C. Matthews, M. M. Simpson, D. G. Ely, and J. A. Boling, *University of Kentucky, Lexington.*
- 4:30 PM 670 Sheep differing in exogenous adrenocorticotropin hormone induced cortisol responses are different in body composition and residual feed intake. S. A. Knott¹, L. J. Cummins², F. R. Dunshea*³, and B. J. Leury³, ¹*Charles Sturt University, Wagga Wagga, NSW, Australia*, ²*Ivanhoe, Cavendish, Victoria, Australia*, ³*The University of Melbourne, Parkville, Victoria, Australia.*
- 4:45 PM 671 Wool growth is negatively related to exogenous adrenocorticotropin hormone induced cortisol responses in sheep with a low wool growth potential but not with a high potential. G. M. Butler¹, M. W. Robertson¹, A. J. Tilbrook², F. R. Dunshea¹, and B. J. Leury*¹, ¹*The University of Melbourne, Parkville, Victoria, Australia*, ²*Monash University, Clayton, Victoria, Australia.*

SYMPOSIUM

International Animal Agriculture

Welfare in Animal Production, from Science to Practice

Chair: Sergio Calsamiglia, *Universitat Autònoma de Barcelona*

Sponsor: *European Association of Animal Production*

101–102

- 2:00 PM Introduction. S. Calsamiglia, *Universitat Autònoma de Barcelona.*
- 2:05 PM 672 **ASAS Centennial Presentation:** The impact of current global challenges in the animal agricultural industry. A. Tewolde*¹ and T. Díaz², ¹*Inter American Institute for Cooperation on Agriculture - IICA, San José, Costa Rica*, ²*Food and Agriculture Organization - FAO, Santiago de Chile.*
- 2:45 PM 673 Farm animal welfare: The science behind the standards. D. Fraser*, *University of British Columbia, Vancouver, BC, Canada.*
- 3:25 PM 674 Strategies to improve animal welfare in poultry production: From science to practice. J. A. Mench*, *University of California, Davis.*
- 4:05 PM 675 Strategies to improve animal welfare in farm animals: From science to practice. X. Manteca*¹, A. Bach², S. Calsamiglia¹, A. Ferret¹, J. Gasa¹, and B. Jones³, ¹*School of Veterinary Science, UAB, Bellaterra, Barcelona, Spain*, ²*IRTA-Unitat de Remugants & ICREA, Barcelona, Spain*, ³*Animal Behaviour & Welfare Consultant, Edinburgh, Scotland.*
- 4:45 PM 676 On farm assessment of animal welfare: The 'Welfare Quality' experience in the EU. L. J. Keeling*, *Swedish University of Agricultural Sciences, Sweden.*

Lactation Biology III

Chair: Lance Baumgard, *University of Arizona*

Sagamore Ballroom 6

- 2:00 PM 677 Inhibitory effect of unsaturated fatty acids on *de novo* fatty acid synthesis in bovine mammary epithelial cells. J. W. McFadden*, I. K. Mullarky, and B. A. Corl, *Virginia Polytechnic Institute and State University, Blacksburg.*
- 2:15 PM 678 Lipogenic gene expression in MAC-T cells is affected differently by fatty acids and enhanced by PPAR-gamma activation. A. K. G. Kadegowda*¹, M. Bionaz², L. S. Piperova¹, R. A. Erdman¹, and J. J. Looz², ¹*University of Maryland, College Park*, ²*University of Illinois, Urbana.*

- 2:30 PM 679 Comparative MammOmics™ of milk fat synthesis in *Mus musculus* vs. *Bos taurus*. M. Bionaz* and J. J. Loor, *University of Illinois, Urbana*.
- 2:45 PM 680 SREBP1 and Spot14 are acutely down-regulated in mammary tissue during abomasal infusion of *trans*-10, *cis*-12 conjugated linoleic acid (CLA) in the dairy cow. K. J. Harvatine*, Y. R. Boisclair, and D. E. Bauman, *Cornell University, Ithaca, NY*.
- 3:00 PM 681 PPAR-gamma activation and *trans*-10, *cis*-12-CLA affect gene expression profiles and intracellular lipid droplet formation and secretion to different extents in MAC-T cells. A. K. G. Kadegowda*¹, M. Bionaz², R. E. Everts², H. A. Lewin², L. S. Piperova¹, R. A. Erdman¹, and J. J. Loor², ¹*University of Maryland, College Park*, ²*University of Illinois, Urbana*.
- 3:15 PM 682 *Trans*-10, *cis*-12 conjugated linoleic acid (CLA) induces a dose-dependent reduction in milk fat synthesis in C57BL6J mice. K. J. Harvatine*, M. M. Robblee, Y. R. Boisclair, and D. E. Bauman, *Cornell University, Ithaca, NY*.
- 3:30 PM Summary discussion: Mechanism of CLA effect on milk fat synthesis.
- 3:45 PM 683 MammOmics™ in *Sus scrofa*: Uncovering genomic adaptations underlying mammary development during pregnancy and lactation. S. Tramontana^{1,2}, W. L. Hurley², M. Bionaz*², A. Sharma², D. E. Graugnard², E. A. Cutler², R. E. Everts², P. Ajmone-Marsan¹, S. L. Rodriguez-Zas², and J. J. Loor², ¹*Università Cattolica del Sacro Cuore, Piacenza, Italy*, ²*University of Illinois, Urbana*.
- 4:00 PM 684 Mammary fat pad but not parenchyma is affected by diet in pre-weaned Holstein heifers. K. M. Daniels*¹, S. R. Hill¹, K. F. Knowlton¹, R. E. James¹, M. L. McGilliard¹, A. V. Capuco², and R. M. Akers¹, ¹*Virginia Polytechnic Institute and State University, Blacksburg*, ²*USDA-Agricultural Research Service, Beltsville, MD*.
- 4:15 PM 685 Hormone interactions modulate mammary growth, morphogenesis and local IGF expression in peripubertal gilts. K. C. Horigan¹, J. F. Trott^{1,2}, and R. C. Hovey*^{1,2}, ¹*University of Vermont, Burlington*, ²*University of California, Davis*.
- 4:30 PM 686 Possible involvement of connective tissue growth factor (CTGF) in insulin-like growth factor-I (IGF1) stimulation of proliferation of bovine mammary epithelial cells. Y. Zhou¹, A. V. Capuco², and H. Jiang*¹, ¹*Virginia Polytechnic Institute and State University, Blacksburg*, ²*USDA-ARS, Beltsville, MD*.
- 4:45 PM 687 Stromal changes in the bovine mammary gland during involution and mammogenesis. L. De Vries*, M. VandeHaar, T. Casey, T. Petzke, H. Dover, J. Liesman, and K. Plaut, *Michigan State University, East Lansing*.

Meat Science and Muscle
Biology Meat Science Research: Past, Present, and Future
Chair: Dean Pringle, The University of Georgia
120

- 2:00 PM 688 **ASAS Centennial Presentation:** A century of pioneers and progress in meat science leads to new frontiers. D. H. Beermann*, *University of Nebraska, Lincoln*.
- 2:30 PM 689 Mapping quality attributes within the pork loin. R. M. Smith*¹, M. J. Anderson¹, J. Viguera², E. Huff-Lonergan¹, and S. M. Lonergan¹, ¹*Iowa State University, Ames*, ²*Company Imasde Agroalimentaria, S.L., Madrid, Spain*.
- 2:45 PM 690 Nitrosylation affects the autolysis of μ -calpain. W. Zhang*, S. Lonergan, and E. Huff-Lonergan, *Iowa State University, Ames*.
- 3:00 PM 691 Myostatin is associated with marbling in beef cattle. K. R. Underwood*, J. Tong, M. J. Zhu, W. J. Means, and M. Du, *University of Wyoming, Laramie*.
- 3:15 PM 692 **ASAS Centennial Presentation:** Current and future meat science research needs. T. H. Powell*¹ and R. D. Huffman², ¹*American Meat Science Association, Savoy, IL*, ²*American Meat Institute, Washington, DC*.
- 3:45 PM Discussion

**Nonruminant Nutrition
Energy Utilization**

**Chairs: Jack Odle, North Carolina State University, and Joe Crenshaw, APC Inc.
105–106**

- 2:00 PM 693 Effects of enzyme additions to diets with corn- and sorghum-based distillers dried grains with solubles on growth performance and nutrient digestibility in nursery and finishing pigs. C. Feoli^{*1}, J. D. Hancock¹, T. L. Gugle¹, S. D. Carter², and N. A. Cole³, ¹*Kansas State University, Manhattan*, ²*Oklahoma State University, Stillwater*, ³*USDA/ARS, Bushland, TX*.
- 2:15 PM 694 A multi-substrate enzyme blend for weaned pigs fed corn- or wheat-barley- based diets and its relationship with water acidification. Y. Han^{*1}, A. Humphreys², P. Lessard³, and M. Vignola⁴, ¹*Nutreco Canada Agresearch, Guelph, ON, Canada*, ²*Nutreco Canada West, Winnipeg, MB, Canada*, ³*Nutreco Canada East, St. Hugues, QC, Canada*, ⁴*Nutreco Canada Agresearch, St-Roumuald, QC, Canada*.
- 2:30 PM 695 Gastrointestinal ecology of piglets fed diets containing non-starch polysaccharide hydrolysis products and egg yolk antibodies upon challenge with *Escherichia coli* (K88). E. Kiarie^{*}, B. A. Slominski, D. O. Krause, and C. M. Nyachoti, *University of Manitoba, Winnipeg, MB, Canada*.
- 2:45 PM 696 Expression profiles of iron-related genes in the intestine and liver of young pigs fed three types of dietary inulin. K. Yasuda^{*1}, H. D. Dawson², E. Wasmuth¹, K. R. Roneker¹, K. Kohn², C. Chen², J. F. Urban², R. M. Welch³, D. D. Miller¹, and X. G. Lei¹, ¹*Cornell University, Ithaca, NY*, ²*USDA-Beltsville Human Nutrition Research Center, Beltsville, MD*, ³*USDA-ARS US Plant, Soil and Nutrition Laboratory, Cornell University, Ithaca, NY*.
- 3:00 PM 697 Variation in chemical composition of soybean hulls. F. F. Barbosa^{*1,2}, M. D. Tokach², J. M. DeRouchey², R. D. Goodband², J. L. Nelssen², and S. S. Dritz², ¹*Federal University of Viçosa, Viçosa, Minas Gerais, Brazil*, ²*Kansas State University, Manhattan*.
- 3:15 PM 698 Influence of soybean hulls on active nutrient transport in the gastrointestinal tract of nursery pigs. D. M. Sholly^{*1}, B. E. Aldridge¹, J. G. Stevens¹, L. L. Snyder¹, J. S. Radcliffe¹, K. E. Bach Knudsen², A. L. Sutton¹, and B. T. Richert¹, ¹*Purdue University, West Lafayette, IN*, ²*University of Aarhus, Tjele, Denmark*.
- 3:30 PM 699 Carbohydrate X gut environment modifier interaction in weaned pigs. B. V. Lawrence^{*}, R. J. Harrell, R. A. Anderson, and F. Navarro, *NOVUS International Inc, St. Louis, MO*.
- 3:45 PM 700 Dietary fatty acids can alter markers of inflammation in cartilage and synovial fluid from multiparous sows. C. I. O'Connor-Robison^{*1}, J. M. Mapes¹, J. D. Spencer², and M. W. Orth¹, ¹*Michigan State University, East Lansing*, ²*JBS United, Sheridan, IN*.
- 4:00 PM 701 Effect of pelleting and fat content on energy value of corn for pigs. J. Noblet^{*} and Y. Jaguelin, *INRA, Saint Gilles, France*.
- 4:15 PM 702 Interaction of dietary protein and energy on growth performance in finishing barrows. P. M. Cline^{*}, C. R. Dove, and M. J. Azain, *University of Georgia, Athens*.
- 4:30 PM 703 Effect of crude protein concentration and sugar beet pulp on nutrient digestibility, nitrogen excretion, intestinal fermentation and manure ammonia and odour emissions from finisher pigs. M. B. Lynch^{*}, C. J. O'Shea, T. Sweeney, J. J. Callan, and J. V. O'Doherty, *University College Dublin, Newcastle, Co. Dublin, Ireland*.
- 4:45 PM 704 Effect of insoluble and soluble dietary fiber on the standardized ileal digestibility of protein and selected amino acids in growing pigs. V. Halas^{*1}, G. Végvári², and L. Babinszky¹, ¹*Kaposvár University, Kaposvár, Hungary*, ²*Corvinus University of Budapest, Budapest, Hungary*.

**Nonruminant Nutrition
Feed Additives II**

**Chairs: Don Giesting, Cargill Animal Nutrition, and Robert Dove, University of Georgia
107–108**

- 2:00 PM 705 Effects of dietary supplementation of benzoic, formic, and lactic acids on nitrogen balance of pigs. B. J. Min^{*1}, D. A. Monson², J. O. Vaughn³, and S. W. Kim¹, ¹*North Carolina State University, Raleigh*, ²*Texas Tech University, Lubbock*, ³*Emerald Performance Materials, Kalama, WA*.
- 2:15 PM 706 Dietary energy density affects response to a dry organic acid blend in late nursery pigs. R. J. Harrell^{*}, B. V. Lawrence, R. Anderson, F. Navarro, and C. D. Knight, *Novus International Inc., St. Charles, MO*.
- 2:30 PM 707 Effect of phytobiotics and acidifiers on the performance of post-weaning piglets. Y. Acosta Aragón^{*1}, T. Steiner¹, R. Castillo², and M. Lopez³, ¹*Biomin GmbH, Herzogenburg, Lower Austria, Austria*, ²*Universidad Zamorano, Tegucigalpa, Honduras*, ³*Biomin America Inc., Guatemala City, Guatemala*.

- 2:45 PM 708 Gut environment modifier × lactose interaction in weaned pigs. J. Lampe¹, B. V. Lawrence^{*2}, R. J. Harrell², G. Gourley¹, R. A. Anderson², and F. Navarro², ¹Swine Graphics Enterprises, Webster City, IA, ²Novus International Inc., St. Louis, MO.
- 3:00 PM 709 Effect of antimicrobial growth-promoters in diets of nursery pigs on growth performance and the development of antibiotic resistant bacteria. J. P. Holt^{*}, E. van Heugten, A. K. Graves, M. T. See, and W. E. M. Morrow, *North Carolina State University, Raleigh.*
- 3:15 PM 710 Kinetics of glucose absorption is affected by dietary oat β-glucans in portal-vein catheterized grower pigs. S. Hooda^{*1}, J. J. Matte², T. Vasanthan¹, and R. T. Zijlstra¹, ¹University of Alberta, Edmonton, AB, Canada, ²Agriculture and Agri-Food Canada, Lennoxville, QC, Canada.
- 3:30 PM 711 Evaluation of ractopamine dose and feeding duration on growth performance and carcass characteristics of late finishing market pigs. R. B. Hinson^{*1}, G. L. Allee¹, M. J. Ritter², C. W. Parks², and S. N. Carr², ¹University of Missouri, Columbia, ²Elanco Animal Health, Greenfield, IN.
- 3:45 PM 712 Effects of EcoCare[®] feed on growth performance and nutrient excretion of finishing pigs. T. Walraven^{*1}, S. Carter¹, M. Lachmann¹, J. Bundy¹, J. Jarrett¹, and B. De Rodas², ¹Oklahoma State University, Stillwater, ²Land O'Lakes Purina Feed, Gray Summit, MO.

Physiology and Endocrinology
Synchronization of Estrus in Cattle
Chair: Raymond Nebel, Select Sires
205

- 2:00 PM 713 **ASAS Centennial Presentation:** Development of cattle estrus and breeding management. J. W. Lauderdale^{*}, *Lauderdale Enterprises Inc, Augusta, MI.*
- 2:30 PM 714 Identification of differential gene expression during transition of bovine corpus luteum from early to mid-phase and their potential role in acquisition of luteolytic sensitivity to prostaglandin F₂ alpha. M. P. Gorvanahally^{*}, M. Salem, J. Yao, K. Inskeep, and J. A. Flores, *West Virginia University, Morgantown.*
- 2:45 PM 715 Synchronizing new follicular wave emergence in *Bos indicus*-influenced heifers with estradiol benzoate: Role of the magnitude of the acute increase in progesterone. J. D. Pack^{*1,2}, I. C. Velez^{1,2}, M. Amstalden^{1,2}, and G. L. Williams^{1,2}, ¹Texas AgriLife Research, Beeville, TX, ²Texas A&M University, College Station.
- 3:00 PM 716 Effect of PRID[®] administered 5 to 11 days post-insemination on serum progesterone concentrations in lactating dairy cows. S. J. Scott^{*}, R. B. Walsh, S. J. LeBlanc, J. Woodward, J. S. Walton, and K. E. Leslie, *University of Guelph, Guelph, ON, Canada.*
- 3:15 PM 717 Comparison of long-term CIDR-based protocols to synchronize estrus in beef heifers. N. R. Leitman^{*}, D. C. Busch, D. A. Mallory, D. J. Wilson, M. R. Ellersieck, M. F. Smith, and D. J. Patterson, *University of Missouri, Columbia.*
- 3:30 PM 718 Timing of artificial insemination in beef cows following the CO-Synch + CIDR protocol. D. C. Busch^{*1}, D. J. Schafer², D. J. Wilson¹, D. A. Mallory¹, N. R. Leitman¹, J. K. Haden², M. R. Ellersieck¹, M. F. Smith¹, and D. J. Patterson¹, ¹University of Missouri, Columbia, ²MFA Inc., Columbia, MO.
- 3:45 PM 719 Substitution of estradiol benzoate for GnRH in the Select Synch + CIDR protocol with or without temporary calf removal in *Bos indicus*-influenced cattle. J. D. Pack^{*1,2}, I. C. Velez^{1,2}, M. Amstalden^{1,2}, and G. L. Williams^{1,2}, ¹Texas AgriLife Research, Beeville, TX, ²Texas A&M University, College Station.
- 4:00 PM 720 Ovarian and fertility responses of Holstein heifers after GnRH, progesterone, and PGF_{2α} at five stages of the estrous cycle. J. S. Stevenson^{*}, *Kansas State University, Manhattan.*
- 4:15 PM 721 Relationship between uterine pH at fixed-time AI and pregnancy success in beef cattle. S. F. Lares^{*}, S. D. Fields, B. L. Perry, D. G. Chen, and G. A. Perry, *South Dakota State University, Brookings.*
- 4:30 PM 722 Comparison of pregnancy rates in beef cattle after fixed-time AI using semen processed with two different extenders. D. C. Busch^{*1}, N. R. Leitman¹, D. A. Mallory¹, D. J. Wilson¹, J. F. Bader², J. L. Martin³, M. F. Smith¹, and D. J. Patterson¹, ¹University of Missouri, Columbia, ²Merial Limited, Fulton, MO, ³Accelerated Genetics, Baraboo, WI.
- 4:45 PM 723 The effect of an opioid antagonist on dairy cattle fertility after insemination. V. Fuentes-Hernandez^{*}, A. Bernal-Canseco, P. I. Fuentes-Castro, and R. Orozco-Hernandez, *Universidad de Guadalajara, Mexico.*

Ruminant Nutrition
Protein and Amino Acids – Beef
Chair: Kristy Dorton, Diamond V
109–110

- 2:00 PM 724 Heat production and efficiency of energy utilization in finishing steers fed diets containing wet distillers grains with solubles (WDGS). M. J. Spiels*, C. L. Ferrell, J. A. Nienaber, T. M. Brown-Brandl, and S. D. Shackelford, *ARS-USDA, US Meat Animal Research Center, Clay Center, NE.*
- 2:15 PM 725 Effects of distillers grains on feedlot performance of crossbred steers. C. Ferrell*, S. Shackelford, and V. Varel, *USDA, ARS, US Meat Animal Research Center, Clay Center, NE.*
- 2:30 PM 726 Effects of increasing level of corn dried distiller's grains with solubles on intake, digestion, and ruminal fermentation in steers fed backgrounding diets. J. L. Leupp*, G. P. Lardy, and J. S. Caton, *North Dakota State University, Fargo.*
- 2:45 PM 727 Effect of feeding distillers grains on performance and marbling deposition in steers fed high-concentrate or high-forage diets. J. P. Schoonmaker*, A. H. Trenkle, and D. C. Beitz, *Iowa State University, Ames, IA.*
- 3:00 PM 728 Effect of wheat-, corn-, and triticale-based distillers grains with solubles on performance and carcass characteristics of growing lambs. L. E. McKeown*^{1,2}, A. V. Chaves², M. Oba¹, E. Okine¹, T. A. McAllister², and D. Gibb², ¹*University of Alberta, Edmonton, AB, Canada*, ²*Agriculture and Agri-Food Canada, Lethbridge, AB, Canada.*
- 3:15 PM 729 Feeding dry-rolled or steam-flaked corn with increasing levels of wet distillers grains to finishing steers. C. M. Godsey*, M. K. Luebbe, G. E. Erickson, and T. J. Klopfenstein, *University of Nebraska, Lincoln.*
- 3:30 PM 730 Effects of distiller's grain and probiotic on growth and carcass characteristics of finishing beef steers. F. F. Korthaus*¹, E. S. Vanzant¹, G. Rentfrow¹, K. K. Kreikemeier^{1,2}, D. L. Harmon¹, and K. R. McLeod¹, ¹*University of Kentucky, Lexington*, ²*Vit-E-Men, NE.*
- 3:45 PM 731 Effect of varying ruminally degradable to undergradable protein ratio on feed intake, nutrient digestion and N balance of buffalo calves. J. I. Sultan*¹, A. Javed¹, M. Yaqoob², and P. Akhtar², ¹*Institute of Animal Nutrition and Feed Technology, University of Agriculture, Faisalabad, Pakistan, Faisalabad, Punjab, Pakistan*, ²*University of Agriculture, Faisalabad, Pakistan.*
- 4:00 PM 732 Effects of 20% corn wet distillers grain's plus solubles in steam-flaked and dry-rolled corn- based finishing diets. J. C. MacDonald^{1,2}, K. H. Jenkins*¹, F. T. McCollum III³, and N. A. Cole⁴, ¹*Texas AgriLife Research, Amarillo, TX*, ²*West Texas A&M University, Canyon*, ³*Texas AgriLife Extension, Amarillo, TX*, ⁴*USDA-Agricultural Research Service, Bushland, TX.*
- 4:15 PM 733 Effect of supplementation frequency of soyhulls and corn gluten feed based mix on digestion and nitrogen balance of beef steers. M. E. Drewnoski* and M. H. Poore, *North Carolina State University, Raleigh.*

Ruminant Nutrition
Rumen Fermentation Modifiers
Chair: Allen Young, Utah State University
Sagamore Ballroom 5

- 2:00 PM 734 Effect of Rumensin® and Tylan® in feedlot diets containing wet distillers grains plus solubles fed to beef steers. N. F. Meyer*¹, G. E. Erickson¹, T. K. Klopfenstein¹, J. R. Benton¹, M. K. Luebbe¹, and S. B. Laudert¹, ¹*University of Nebraska, Lincoln*, ²*Elanco Animal Health, Greenfield, IN.*
- 2:15 PM 735 Effect of Rumensin® and Tylan® fed separately on in combination on feedlot performance and carcass characteristics of feedlot cattle. G. J. Vogel*¹, S. B. Laudert¹, and R. S. Swingle², ¹*Elanco Animal Health, Greenfield, IN*, ²*Cactus Feeders, Amarillo, TX.*
- 2:30 PM 736 Interactions of monensin with dietary fat and carbohydrate components on ruminal fermentation and production responses by dairy cows. B. Mathew*, E. R. Oelker, M. L. Eastridge, and J. L. Firkins, *The Ohio State University, Columbus.*
- 2:45 PM 737 Effects of Optaflexx™ on ruminal ammonia and amino acid concentrations in cattle fed dry-rolled or steam-flaked corn finishing diets with or without dried distiller's grains. C. E. Walker* and J. S. Drouillard, *Kansas State University, Manhattan.*
- 3:00 PM 738 Effects of cinnamaldehyde-eugenol and capsicum on rumen fermentation and feeding behavior in beef heifers fed a high-concentrate diet. M. Rodriguez-Prado¹, S. Calsamiglia¹, A. Ferret¹, J. Zwieten¹, L. Gonzalez¹, and D. Bravo*², ¹*Universitat Autònoma de Barcelona, Spain*, ²*Pancosma, Switzerland.*

- 3:15 PM 739 Meta-analysis on the effect of a cinnamaldehyde and eugenol mixture on the performance of lactating dairy cows. D. Bravo*¹ and P. Doane², ¹*Pancosma Research, Geneva, Switzerland*, ²*ADM Research, Decatur, IL*.
- 3:30 PM 740 Effects of yeast culture on rumen microbial fermentation of heifers challenged with high-concentrate feeding. D. Moya*¹, S. Calsamiglia¹, A. Ferret¹, J. I. Fandiño¹, and L. Castillejos², ¹*Universitat Autònoma de Barcelona, Bellaterra, Spain*, ²*Diamond V Europe, Marum, the Netherlands*.
- 3:45 PM 741 Influence of body condition at calving and feed supplementation with yeast culture on feed intake, peripheral blood metabolites and blood mineral concentrations in early lactating dairy cows. R. Allbrahim*, M. Doherty, L. O'Grady, V. Gath, P. Duffy, and F. Mulligan, *University College, Dublin, Ireland*.
- 4:00 PM 742 Effect of feeding Diamond V Yeast Culture™ on milk production and dry matter intake in lactating dairy cows: A meta-analysis. A. R. Rabiee¹, I. J. Lean*¹, K. L. Dorton², M. E. Engstrom², and W. K. Sanchez², ¹*Bovine Research Australasia, Camden, NSW, Australia*, ²*Diamond V Mills, Cedar Rapids, IA*.
- 4:15 PM 743 Dose-response effects of Rumensin® supplementation on kinetics of biohydrogenation of fatty acids in the rumen. M. S. Allen* and Y. Ying, *Michigan State University, East Lansing*.
- 4:30 PM 744 Exogenous glucosamine administration alters glucose and insulin homeostasis in sheep. M. W. Robertson*, F. R. Dunshea, and B. J. Leury, *The University of Melbourne, Parkville, Victoria, Australia*.
- 4:45 PM 745 Effect of ZADO®, as enzymes from anaerobic bacterium, on extent of ruminal fermentation kinetics, microbial protein synthesis and milk production in dairy cows. H. M. Gado*¹, M. Hassan², and A.-F. Z. M. Salem³, ¹*Ain Shams University, Cairo, Egypt*, ²*Cairo University, Cairo, Egypt*, ³*Alexandria University, Alexandria, Egypt*.

Friday, July 11

Animal Behavior and Well-Being

Beef and Dairy Cattle

Chair: Jeremy Marchant-Forde, USDA-ARS and Purdue University

101–102

- 8:30 AM 746 Effect of receiving weight on predicted days to onset of respiratory disease in feedlot steers. C. M. McAllister*¹, B. W. Brigham¹, R. M. Enns¹, R. L. Weaber², H. Van Campen³, G. H. Loneragan⁴, J. L. Salak-Johnson⁵, C. C. L. Chase⁶, J. J. Wagner¹, and E. J. Pollak⁷, ¹*Colorado State University, Fort Collins*, ²*University of Missouri, Columbia*, ³*Colorado State University, Fort Collins*, ⁴*West Texas A&M, Canyon*, ⁵*University of Illinois, Urbana*, ⁶*South Dakota State University, Brookings*, ⁷*Cornell University, Ithaca, NY*.
- 8:45 AM 747 Correlations among measures of temperament, weight, and gain of steers at placement and reimplant in a commercial feed yard. R. L. Weaber*¹, R. M. Enns², H. Van Campen², G. H. Loneragan³, J. L. Salak-Johnson⁴, C. Chase⁵, J. J. Wagner², and E. J. Pollak⁶, ¹*University of Missouri, Columbia*, ²*Colorado State University, Fort Collins*, ³*West Texas A&M University, Canyon*, ⁴*University of Illinois, Urbana*, ⁵*South Dakota State University, Brookings*, ⁶*Cornell University, Ithaca, NY*.
- 9:00 AM 748 The effect of exit velocity at receiving and re-implant on average daily gain and weight at re-implant. A. R. Pepper*¹, R. M. Enns¹, R. L. Weaber³, H. Van Campen², G. H. Loneragan⁴, J. L. Salak-Johnson⁵, C. C. L. Chase⁶, J. J. Wagner¹, and E. J. Pollak⁷, ¹*Colorado State University, Fort Collins*, ²*Colorado State University, Fort Collins*, ³*University of Missouri, Columbia*, ⁴*West Texas A&M University, Canyon*, ⁵*University of Illinois, Urbana*, ⁶*South Dakota State University, Brookings*, ⁷*Cornell University, Ithaca, NY*.
- 9:15 AM 749 Effect of processing stress on feedlot cattle sickness. B. W. Brigham*¹, R. M. Enns¹, R. L. Weaber², H. VanCampen¹, G. H. Loneragan³, J. L. Salak-Johnson⁴, C. C. L. Chase⁵, J. J. Wagner¹, C. M. McAllister¹, and E. J. Pollak⁶, ¹*Colorado State University, Fort Collins*, ²*University of Missouri, Columbia*, ³*West Texas A&M University, Canyon*, ⁴*University of Illinois, Urbana*, ⁵*South Dakota State University, Brookings*, ⁶*Cornell University, Ithaca, NY*.
- 9:30 AM 750 Effect of daily ambient temperature and wind speed on sickness of feedlot cattle. S. E. Speidel*¹, R. M. Enns¹, G. H. Loneragan², R. L. Weaber³, H. Van Campen¹, J. L. Salak-Johnson⁴, C. C. L. Chase⁵, J. J. Wagner¹, and E. J. Pollak⁶, ¹*Colorado State University, Fort Collins*, ²*West Texas A&M University, Canyon*, ³*University of Missouri, Columbia*, ⁴*University of Illinois, Urbana*, ⁵*South Dakota State University, Brookings*, ⁶*Cornell University, Ithaca, NY*.
- 9:45 AM Break
- 10:00 AM 751 Effect of rubber flooring on cow locomotion and gene expression. K. O'Driscoll^{1,2}, M. M. Schutz³, and S. D. Eicher*⁴, ¹*Teagasc, Fermoy, Ireland*, ²*NUI Dublin, Dublin, Ireland*, ³*Purdue University, West Lafayette, IN*, ⁴*USDA-ARS, West Lafayette, IN*.
- 10:15 AM 752 Effect of feed bunk sprinklers on attendance at un-shaded feed bunks in dry-lot dairies. B. H. Carter*, T. H. Friend, J. E. Sawyer, and M. A. Tomazewski, *Texas A&M University, College Station*.

- 10:30 AM 753 Effect of shade on panting score of feedlot cattle exposed to heat stress. J. B. Gaughan^{*1}, M. L. Sullivan¹, J. Cawdell-Smith¹, and T. L. Mader², ¹The University of Queensland, Gatton, Qld, Australia, ²University of Nebraska, Concord.
- 10:45 AM 754 A comparison of behavior of steers raised in hoop buildings or feedlots. R. Baker^{*}, A. Johnson, S. Lonergan, M. Honeyman, K. Stalder, L. Sadler, and P. Lammers, Iowa State University, Ames.
- 11:00 AM 755 Effects of soil surface temperature on daily water intake in feedlot steers. R. A. Arias^{*1} and T. L. Mader², ¹Universidad Católica de Temuco, Temuco, Chile, ²University of Nebraska, Lincoln.
- 11:15 AM 756 Effect on performance and animal welfare of an all-concentrate diet fed to heifers. G. Faleiro, L. A. González, A. Ferret^{*}, X. Manteca, J. L. Ruiz de la Torre, and S. Calsamiglia, Nutrition, Management and Animal Welfare Research Group, Universitat Autònoma Barcelona, Bellaterra, Barcelona, Spain.

Breeding and Genetics
Dairy, Sheep & Goat – Crossbreeding, Inbreeding & Breed Conservation
Chair: Kent Weigel, University of Wisconsin
Sagamore Ballroom 7

- 8:30 AM 757 Genetic variation in the threshold of sensitivity to heat stress in Holsteins. J. P. Sánchez^{*1}, R. Rekaya², I. Aguilar², and I. Misztal^{2,3}, ¹Universidad de León, Campus de Vegazana, León, Spain, ²University of Georgia, Athens, ³Instituto Nacional de Investigación Agropecuaria, Estación Las Brujas, Canelones, Uruguay.
- 8:45 AM 758 *In situ* goat conservation population and selection for parasite resistance. J. M. Dzakuma^{*1}, B. M. Johnson¹, N. C. Beckford¹, L. C. Nuti¹, and T. M. Craig², ¹Prairie View A&M University, Prairie View, TX, ²Texas A&M University, College Station.
- 9:00 AM 759 Genetic diversity of US sheep breeds. H. Blackburn^{*1}, M. Brown², S. Wildeus³, R. Stobart⁴, D. Bixby⁵, J. Dzakuma⁶, S. Ericsson⁷, W. Getz⁸, N. Cockett⁹, D. Matsas¹⁰, C. Welsh¹, S. Spiller¹, and D. Waldron¹¹, ¹ARS National Animal Germplasm Program, Ft. Collins, CO, ²ARS Grazing Lands Research, El Reno, OK, ³Virginia State University, Petersburg, ⁴University of Wyoming, Laramie, ⁵American Livestock Breeds Conservancy, Pittsboro, NC, ⁶Prairie View A&M University, Prairie View, TX, ⁷Sul Ross University, Alpine, TX, ⁸Fort Valley State University, Fort Valley, GA, ⁹Utah State University, Logan, ¹⁰Tufts University, North Grafton, MA, ¹¹Texas A&M University, San Angelo, TX.
- 9:15 AM 760 Heterogeneity of founder-specific inbreeding depression on birth BW of Ripollésa lambs. J. Casellas^{*1}, J. Piedrafita², G. Caja², and L. Varona^{1,3}, ¹Genètica i Millora Animal, IRTA-Lleida, Lleida, Spain, ²Departament de Ciència Animal i dels Aliments, Universitat Autònoma de Barcelona, Bellaterra, Spain, ³Departamento de Anatomía, Embriología y Genética Animal, Universidad de Zaragoza, Zaragoza, Spain.
- 9:30 AM 761 Type appraisal of Holsteins, Jerseys, and reciprocal crosses under two classification systems. B. G. Cassell^{*1}, K. M. Olson¹, and A. J. McAllister², ¹Virginia Polytechnic Institute and State University, Blacksburg, ²University of Kentucky, Lexington.
- 9:45 AM Break
- 10:00 AM 762 Montbeliarde-sired crossbred cows compared to pure Holstein cows for production, SCS, days open, and body condition score during their first two lactations. A. R. Hazel^{*}, B. J. Heins, L. B. Hansen, A. J. Seykora, D. G. Johnson, J. G. Linn, and J. E. Romano, University of Minnesota, St. Paul.
- 10:15 AM 763 Jersey × Holstein crossbred cows compared to pure Holstein cows for production, SCS, days open, body condition score, and udder measurements during the first three lactations. B. J. Heins^{*}, A. R. Hazel, L. B. Hansen, A. J. Seykora, D. G. Johnson, J. G. Linn, and J. E. Romano, University of Minnesota, St. Paul.
- 10:30 AM 764 Number of services per conception, estimated calving interval and lactation length in New Zealand and Mexican Holstein cows in Torreón, Coahuila, Mexico. Case study. T. B. García-Peniche^{*1} and A. Aranda-Munguía², ¹Instituto Nacional de Investigaciones Forestales Agrícolas y Pecuarias, Paso del Toro, Veracruz, Mexico, ²Establo La Montaña, Torreón, Coahuila, Mexico.
- 10:45 AM 765 Puberty and conception in Holsteins, Jerseys and reciprocal crossbred heifers. W. J. Silvia^{*1}, K. G. Hall², C. M. Williams³, A. J. McAllister¹, B. G. Cassell², and S. P. Washburn³, ¹University of Kentucky, Lexington, ²Virginia Polytechnic Institute and State University, Blacksburg, ³North Carolina State University, Raleigh.
- 11:00 AM 766 Production, conformation, health, and fertility of backcross Holstein × Jersey cattle and their Holstein contemporaries. K. A. Weigel^{*}, P. C. Hoffman, C. Maltecca, and T. J. Halbach, University of Wisconsin, Madison.

SYMPOSIUM
Growth and Development
The Molecular Basis for Feed Efficiency
Chairs: Rod Hill, University of Idaho, and Mark Hill, Akey Feeds
Sponsor: Elanco
Sagamore Ballroom 1

- 8:30 AM Introduction. R. Hill, *University of Idaho*.
- 8:40 AM 767 Mitochondrial efficiency in lines of mice divergently selected for heat loss. J. M. McDonald* and M. K. Nielsen, *University of Nebraska, Lincoln*.
- 9:10 AM 768 The molecular basis for feed efficiency in beef cattle. S. S. Moore*¹, E. L. Sherman¹, J. D. Nkrumah², F. D. Mujabi¹, Z. Wang¹, and P. Stothard¹, ¹*University of Alberta, Edmonton, AB, Canada*, ²*Meril Limited, Duluth, GA*.
- 9:40 AM 769 Associations between mitochondrial function and feed efficiency in poultry and livestock species. W. G. Bottje*¹ and G. E. Carstens², ¹*University of Arkansas, Fayetteville*, ²*Texas A&M University, College Station*.
- 10:10 AM 770 Physiological basis for residual feed intake. R. M. Herd*¹ and P. F. Arthur², ¹*NSW Department of Primary Industries, Armidale, Australia*, ²*NSW Department of Primary Industries, Camden, Australia*.
- 10:40 AM 771 Physiological basis for residual feed intake in pigs. C. de Lange* and G. Vander Voort, *University of Guelph, Guelph, ON, Canada*.

SYMPOSIUM
Mixed Models Workshop
Session 2

**Chair: Rob Tempelman, Michigan State University, Bruce Craig, Purdue University,
and Larry Douglas, University of Maryland.**

103

(First session on 7/10, 10:30 AM – 5:00 PM; Interested parties should attend both sessions. Preregistration fee required.)

- 8:30 AM A professional development opportunity in the use of mixed models for the analysis of common experimental designs in the animal sciences. Topic areas include repeated measures analysis, mixed model analysis of categorical data, growth curve modeling using random coefficient, nonlinear, and spline models, and power and sample size determinations for comparing alternative designs for continuous and categorical responses. All presented applications will be based on the new SAS software procedure PROC GLIMMIX.

Nonruminant Nutrition
Protein and Feed Additives

Chairs: Lee Chiba, Auburn University, and Kevin Soltwedel, Professional Swine Management LLC
107–108

- 8:30 AM 772 Bacteria composition, richness and diversity differ in colon digesta of piglets fed diets with different levels of protein and challenged with *Escherichia coli* K88. F. O. Opapeju*¹, R. L. Payne², D. O. Krause¹, and C. M. Nyachoti¹, ¹*University of Manitoba, Winnipeg, MB, Canada*, ²*Evonik-Degussa Corporation, Kennesaw, GA*.
- 8:45 AM 773 Value of spray-dried egg in pig nursery diets. M. Song*¹, B. G. Harmon², M. T. Che¹, M. U. Steidinger³, and J. E. Pettigrew¹, ¹*University of Illinois, Urbana*, ²*Railsplitter Feed Technology, Wildwood, MO*, ³*Swine Nutrition Services Inc., Forrest, IL*.
- 9:00 AM 774 The use of dried bacterial cells in nursery pig diets. R. B. Hinson*¹, J. L. Usry², A. M. Gaines³, and G. L. Allee¹, ¹*University of Missouri, Columbia*, ²*Ajinomoto Heartland LLC, Chicago, IL*, ³*The Maschhoffs Inc., Carlyle, IL*.
- 9:15 AM 775 Effects of increasing true ileal digestible lysine/metabolizable energy ratios on gilts grown in a commercial finishing environment. N. W. Shelton*, M. D. Tokach, S. S. Dritz, R. D. Goodband, J. L. Nelssen, and J. M. DeRouchey, *Kansas State University, Manhattan*.
- 9:30 AM 776 Effects of feeding excess crude protein on growth performance and carcass traits in finishing pigs. S. M. Williams*, J. D. Hancock, C. Feoli, S. Issa, and T. L. Gugle, *Kansas State University, Manhattan*.

- 9:45 AM 778 Effects of adding an enhanced flavor to the creep feed on the proportion of piglets consuming creep feed and pre-weaning performance. R. C. Sulabo^{*1}, J. M. DeRouche¹, M. D. Tokach¹, C. D. Risley², R. D. Goodband¹, S. S. Dritz¹, and J. L. Nelssen¹, ¹*Kansas State University, Manhattan*, ²*Lucta USA Inc., Northbrook, IL*.
- 10:00 AM 777 Effects of organoleptic properties of the feed and diet complexity on nursery pig performance. R. C. Sulabo^{*1}, J. M. DeRouche¹, M. D. Tokach¹, C. D. Risley², R. D. Goodband¹, S. S. Dritz¹, and J. L. Nelssen¹, ¹*Kansas State University, Manhattan*, ²*Lucta USA Inc., Northbrook, IL*.
- 10:15 AM 779 Diet preference and growth performance in weanling pigs fed diets with *Morinda citrifolia* (noni). C. Feoli^{*1}, J. D. Hancock¹, K. C. Behnke¹, and R. G. Godbee², ¹*Kansas State University, Manhattan*, ²*Morinda Agricultural Products, Orem, UT*.
- 10:30 AM 780 Effects of *Morinda citrifolia* (noni) and diet complexity on growth performance in weanling pigs. C. Feoli^{*1}, J. D. Hancock¹, K. C. Behnke¹, and R. G. Godbee², ¹*Kansas State University, Manhattan*, ²*Morinda Agricultural Products, Orem, UT*.
- 10:45 AM 781 Cloning of Ningxiang porcine growth hormone gene and its construction respectively of prokaryotic and eukaryotic expression vector. W. C. Wang¹, W. Y. Chu¹, W. T. Gu¹, M. M. Geng¹, T. J. Li¹, Y. L. Yin^{*1}, and G. Y. Wu^{1,2}, ¹*The Chinese Academy of Sciences, Changsha, Hunan, P. R. China*, ²*Texas A&M University, College Station*.

SYMPOSIUM

Nonruminant Nutrition

Energy Systems and Alternative Energy Ingredients for Swine

Chair: Kevin Herkelman, Wenger's Feed Mill Inc.

Sponsors: Archer Daniels Midland Company, European Association of Animal Production, Evonik Degussa Corp., and Novus International

105–106

- 8:30 AM Introduction. K. Herkelman, *Wenger's Feed Mill, Inc.*
- 8:35 AM 782 Recent developments in net energy research for pigs. J. Noblet^{*}, *INRA, Saint Gilles, France*.
- 9:15 AM 783 Practical application of the net energy system in swine nutrition. R. T. Zijlstra^{*1} and R. L. Payne², ¹*University of Alberta, Edmonton, AB, Canada*, ²*Evonik-Degussa Corporation, Kennesaw, GA*.
- 9:45 AM 784 Impact of the biofuels industry on alternative ingredients available to swine. B. J. Kerr^{*} and T. E. Weber, *USDA-ARS-NSTL, Ames, IA*.
- 10:15 AM 785 Effects of feeding increasing levels of glycerol with or without distillers dried grains with solubles in the diet on grow-finish pig growth performance and carcass quality. J. Stevens^{*}, A. Schinckel, M. Latour, D. Kelly, D. Sholly, B. Legan, and B. Richert, *Purdue University, West Lafayette, IN*.
- 10:30 AM 786 Effects of increasing dietary glycerol and dried distillers grains with solubles on growth performance of finishing pigs. A. W. Duttlinger^{*1}, M. D. Tokach¹, S. S. Dritz¹, J. M. DeRouche¹, J. L. Nelssen¹, R. D. Goodband¹, and K. J. Prusa², ¹*Kansas State University, Manhattan*, ²*Iowa State University, Ames*.
- 10:45 AM 787 Effect of feeding an alternative carbohydrate source on nursery pig growth performance. B. E. Bass^{*}, C. L. Bradley, C. V. Maxwell, Z. B. Johnson, and J. W. Frank, *University of Arkansas, Fayetteville*.

Ruminant Nutrition

Acidosis, DCAD and Acid-Base Metabolism

Chair: Bill Sanchez, Diamond V Mills

Sagamore Ballroom 2

- 8:30 AM 788 The relationship between the severity of ruminal acidosis and the expression of genes associated with the absorption and metabolism of volatile fatty acids and glucose in ruminal tissue. G. B. Penner^{*1}, M. Taniguchi¹, L. L. Guan¹, K. A. Beauchemin², and M. Oba¹, ¹*University of Alberta, Edmonton, AB, Canada*, ²*Agriculture and Agri-Food Canada, Lethbridge, AB, Canada*.
- 8:45 AM 789 Effects of bulk density of steam-flaked corn and dietary roughage concentration on performance, rate of intake, and acid-base balance of Holstein steers. K. E. Hales^{*}, K. R. Wilson, J. T. Vasconcelos, J. C. Declerck, M. L. May, M. J. Quinn, and M. L. Galyean, *Texas Tech University, Lubbock*.

- 9:00 AM 790 Effect of dietary cation-anion difference on feedlot performance, N mass balance, and manure pH in open feedlot pens. M. K. Luebbe*, G. E. Erickson, T. J. Klopfenstein, and J. R. Benton, *University of Nebraska, Lincoln*.
- 9:15 AM 791 Grain species and cultivars and ruminal acidosis. I. Determination of challenge level. I. J. Lean*¹, A. R. Rabiee¹, J. L. Black², and R. H. King³, ¹*Bovine Research Australasia, Camden, NSW, Australia*, ²*John L. Black Consulting, Warrimoo, NSW, Australia*, ³*RHK Consulting, Essendon, Victoria, Australia*.
- 9:30 AM 792 Grain species and cultivars and ruminal acidosis. II. Comparisons and validation of a near infra-red reflectance assay. I. J. Lean*¹, A. R. Rabiee¹, J. L. Black², S. Nielsen³, and R. H. King⁴, ¹*Bovine Research Australasia, Camden, NSW, Australia*, ²*John L. Black Consulting, Warrimoo, NSW, Australia*, ³*NSW Department of Primary Industries, Orange, NSW, Australia*, ⁴*RHK Consulting, Essendon, Victoria, Australia*.
- 9:45 AM 793 Influence of electrolyzed alkaline water on milk production in dairy cows. J. D. Ferguson*, D. Remsberg, and Z. Wu, *University of Pennsylvania, Kennett Square*.
- 10:00 AM 794 Timothy hays differing in dietary cation-anion difference affect the capability to maintain calcium homeostasis in dairy cows. V. S. Heron*¹, G. F. Tremblay², and M. Oba¹, ¹*University of Alberta, Edmonton, AB, Canada*, ²*Agriculture and Agri-Food Canada, Quebec, QC, Canada*.

Ruminant Nutrition
Energy and Carbohydrate Byproducts – Beef
Chair: Stacey Gunter, USDA-ARS-SPRRS
Sponsors: ASAS Foundation, and Mycogen
Sagamore Ballroom 4

- 8:30 AM 795 **ASAS Centennial Presentation:** Discovery and application of energetic principles to feeding systems for beef cattle. C. Ferrell*¹ and J. Oltjen², ¹*USDA, ARS, US Meat Animal Research Center, Clay Center, NE*, ²*University of California, Davis*.
- 9:00 AM 796 **ASAS Centennial Presentation:** Discovery and application of energetic principles to feeding systems for beef cattle: Use of dynamic models. J. W. Oltjen*¹ and C. L. Ferrell², ¹*University of California, Davis*, ²*USDA, ARS, US Meat Animal Research Center, Clay Center, NE*.
- 9:30 AM Introduction of Early Career Award Winner
- 9:35 AM 797 **ASAS Early Career Achievement Award Presentation:** Advances in modeling ruminant nutrient utilization. E. Kebreab*¹, J. Dijkstra², A. Bannink³, and J. France⁴, ¹*University of Manitoba, Winnipeg, MB, Canada*, ²*Wageningen University, Wageningen, the Netherlands*, ³*Wageningen University and Research Centre, Wageningen, the Netherlands*, ⁴*University of Guelph, Guelph, ON, Canada*.
- 10:05 AM Q&A for Early Career Award Winner
- 10:15 AM 798 Effects of feeding high levels of byproducts in different combinations to finishing cattle. M. F. Wilken*, M. K. Luebbe, J. R. Benton, G. E. Erickson, and T. J. Klopfenstein, *University of Nebraska, Lincoln*.
- 10:30 AM 799 Nutrient digestibility and utilization by cattle consuming cotton gin mote as a replacement for forage. C. M. Welch* and B. J. Rude, *Mississippi State University, Mississippi State*.
- 10:45 AM 800 Beef steer intake and performance when fed whole cottonseed free-choice with hay. G. M. Hill*¹, M. H. Poore², D. J. Renney¹, and A. J. Nichols¹, ¹*University of Georgia, Tifton*, ²*North Carolina State University, Raleigh*.
- 801 Withdrawn by author.
- 11:00 AM 802 Influence of roughage source and level in feedlot diets containing wet distillers grains on ruminal metabolism and nutrient digestibility in steers. J. R. Benton*, G. E. Erickson, T. J. Klopfenstein, N. F. Meyer, and C. D. Buckner, *University of Nebraska, Lincoln*.
- 11:15 AM 803 Feedlot performance of Holstein steers fed treated-wheat straw-distillers grains diets as a corn replacement pellet. J. R. Sewell¹, L. L. Berger*¹, M. J. Cecava², N. A. Pyatt², and P. H. Doane², ¹*University of Illinois, Urbana*, ²*ADM Animal Nutrition Research, Decatur, IN*.
- 11:30 AM 804 Characterizing quality and composition of beef from cattle fed combinations of steam-flaked corn, dry-rolled corn, and dried corn distiller's grains with solubles. P. L. Black*¹, G. L. Parsons¹, M. K. Shelor¹, M. E. Dikeman¹, K. K. Karges², M. L. Gibson², and J. S. Drouillard¹, ¹*Kansas State University, Manhattan*, ²*Dakota Gold Research Association, Sioux Falls, SD*.

SYMPOSIUM

Triennial Lactation Symposium joint with Lactation Biology 9th ASAS-EAAP International Workshop on the Biology of Lactation in Farm Animals

Chair: Geoffrey E. Dahl, University of Florida

Sponsors: Elanco Animal Health, Monsanto Company, Pfizer Animal Health, and USDA-CSREES
Sagamore Ballroom 3

| | | |
|----------|-----|--|
| 8:30 AM | | Introductions |
| 8:45 AM | 805 | Immune components of colostrum and milk. K. Stelwagen*, T. T. Wheeler, and E. A. Carpenter, <i>AgResearch, Ruakura Research Centre, Hamilton, New Zealand.</i> |
| 9:30 AM | 806 | Mammary immunology and protection of the neonate. H. Salmon*, <i>IASP, Lymphocyte et Immunité des Muquesuses, Nouzilly, France.</i> |
| 10:15 AM | 807 | Characterisation of the bovine RNase gene family: Evidence for rapid evolution and acquisition of an innate immune function in the mammary gland. T. T. Wheeler* ¹ , N. Maqbool ² , A. Molenaar ¹ , P. Harris ¹ , and M. Callaghan ¹ , <i>AgResearch, Hamilton, Waikato, New Zealand, AgResearch, Mosgiel, New Zealand.</i> |
| 10:30 AM | 808 | Neonatal protection by an innate immune system of human milk consisting of oligosaccharides and glycans. D. S. Newburg*, <i>Massachusetts General Hospital and Harvard Medical School, Boston, MA.</i> |
| 11:15 AM | 809 | Immune signaling during mammary development and involution. C. J. Watson*, <i>University of Cambridge, Cambridge, UK.</i> |
| 12:00 PM | 810 | Effect of lipopolysaccharides on plasminogen activator activity and lactoferrin mRNA expression in a bovine mammary epithelial cell line. C. Pecorini, R. Rebucci, E. Fusi, F. Galante, L. Rossi, F. Cheli, and A. Baldi*, <i>University of Milan, Milan, Italy.</i> |
| 12:15 PM | 811 | Pathogen-dependent variations in the innate immune response to intramammary infection. D. D. Bannerman*, <i>USDA-ARS, Beltsville Agricultural Research Center, Beltsville, MD.</i> |

Ruminant Nutrition

Feeding Behavior, Chewing and Digestibility Chair: John Wagner, Colorado State University Sagamore Ballroom 2

| | | |
|----------|-----|--|
| 10:15 AM | 812 | Meta analysis of responses of goats to chewing index. D. Sauvant* ^{1,2} and S. Giger-Reverdin ² , <i>Agroparistech, Paris, France, INRA-UMR PNA, Paris, France.</i> |
| 10:30 AM | 813 | Is chewing efficiency of dairy cows effected by physiological stage? I. Schadt* ¹ , J. D. Ferguson ² , G. Azzaro ¹ , R. Petriglieri ¹ , C. Guardiano ¹ , and G. Licitra ^{1,3} , <i>CoRFiLaC Regione Siciliana, Ragusa, Italy, University of Pennsylvania, Kennett Square, D.A.C.P.A. Catania University, Catania, Italy.</i> |
| 10:45 AM | 814 | Competition at the feeder alters feeding and social behavior of transition dairy cows. K. L. Proudfoot* ¹ , D. M. Veira ² , D. M. Weary ¹ , and M. A. G. von Keyserlingk ¹ , <i>University of British Columbia, Vancouver, BC, Canada, Pacific Agri-Food Research Centre, Agassiz, BC, Canada.</i> |
| 11:00 AM | 815 | Animal feed assessment quality by SMartNose®. T. Rapisarda* ¹ , G. Belvedere ¹ , F. La Terra ¹ , A. Cannas ² , G. Licitra ^{3,1} , and S. Carpino ¹ , <i>CoRFiLaC, Regione Siciliana, Ragusa, Italy, University of Sassari, Sassari, Italy, University of Catania, Catania, Italy.</i> |
| 11:15 AM | 816 | Prediction of <i>in vivo</i> diet digestibility in lactating dairy cows from data based on values obtained using sheep. P. Huhtanen* ¹ , M. Rinne ² , and J. Nousiainen ³ , <i>Cornell University, Ithaca, NY, MTT Agrifood Research, Jokioinen, Finland, Valio Ltd., Helsinki, Finland.</i> |
| 11:30 AM | 817 | Depression in nutrient digestibility by lactating dairy cows when dry matter intake is expressed as a multiple of maintenance. D. P. Casper* ¹ and D. R. Mertens ² , <i>Agri-King Inc., Fulton, IL, USDA-ARS Dairy Forage Research Center, Madison, WI.</i> |

SYMPOSIUM

Triennial Lactation Symposium joint with Lactation Biology

9th ASAS-EAAP International Workshop on the Biology of Lactation in Farm Animals

Chair: Geoffrey E. Dahl, University of Florida

Sponsors: Elanco Animal Health, Monsanto Company, Pfizer Animal Health, and USDA-CSREES
Sagamore Ballroom 3

- 2:00 PM 818 Nutritional, hormonal and environmental effects on colostrum in sows. C. Farmer*¹ and H. Quesnel², ¹*Agriculture and Agri-Food Canada, Dairy and Swine R & D Centre, Sherbrooke, QC, Canada*, ²*Institut National de la Recherche Agronomique, UMR SENAH, Saint Gilles, France*.
- 2:45 PM 819 Defining gene networks during involution of the mammary gland in dairy cows. P. Piantoni*, W. L. Hurley, S. L. Rodriguez-Zas, R. E. Everts, H. A. Lewin, and J. J. Loor, *University of Illinois, Urbana*.
- 3:00 PM 820 Mastitis control on organic and traditional dairies. P. L. Ruegg*, *University of Wisconsin, Madison*.
- 3:45 PM 821 Association of prion protein genotypes with milk production and milk cheese-making properties in two breeds of dairy ewes. Y. Moussaoui, G. Caja, A. A. K. Salama*, E. Albanell, R. Casals, X. Such, D. P. Jaramillo, and A. J. Trujillo, *Universitat Autònoma de Barcelona, Bellaterra, Barcelona, Spain*.
- 4:00 PM 822 Management effects on colostrogenesis in small ruminants. N. Castro*¹, J. Capote², R. M. Bruckmaier³, and A. Argüello¹, ¹*Las Palmas de Gran Canaria University, Arucas, Spain*, ²*Canarian Agronomic Science Institute, La Laguna, Tenerife, Spain*, ³*University of Bern, Bern, Switzerland*.
- 4:45 PM 823 Haptoglobin, cortisol, albumin/globulin (A/G) ratio and IGF-1 in goat kids around weaning. D. Magistrelli*, L. Pinotti, and F. Rosi, *University of Milan, Milan, Italy*.

Author Index

Numbers following names refer to abstract numbers: a number alone indicates an oral presentation, a T prior to a number indicates a Tuesday poster, a W indicates a Wednesday poster, a TH indicates a Thursday poster.

The author index is created directly and automatically from the abstracts. If an author's name is typed differently on multiple abstracts, the entries in the author index will reflect these discrepancies. Efforts have been made to make this index consistent; however, error from author entry contributes to inaccuracies.

A

- Aalseth, E., 250
Aaron, D. K., 351, 669
Abaker Bertipaglia, L., TH47
Abaker Bertipaglia, L. M., TH47
Abanikannda, O. T. F., W49, W194
Abd El-Salam, M. H., 25
Abdalla, A. K., 45
Abdel-Azim, G., 11
Abdelhamid, K., W127
Abdeljabbar, K., W127
Abdelqader, M. M., 331
Abe, H., T24
Abedini, A., T13, T14
Abo El-Nor, S., TH216
Abreu, D. C., TH247
Abreu, F. M., W157
AbuGhazaleh, A., W69
AbuGhazaleh, A. A., W131, TH216
Acosta, D. C., W259, TH276
Acosta Aragón, Y., T89, T94, 707
Acuña, O. S., TH147, TH148
Adams, D. R., 219
Adaska, J. M., 482
Addis, M., T254
Adefope, N., T283
Adeola, O., 190, 207
Adeseko, O. T., W49
Adesogan, A. T., T81, W196, 159, 598
Adviento-Borbe, A., TH256
Afanador-Tellez, G., T138
Aferri, G., W256, TH280, TH281
Affentranger, P., 356
Afzalzadeh, A., T192
Agazzi, A., T227
Aghaziaraty, N., T190, W195
Aghini-Lombardi, F., T54
Agle, M., 307, 341
Aguerre, M. J., W184
Aguir, A., 128
Aguir, G. A., W236
Aguilar, I., T26, 620, 757
Aguilera, J. F., T108, W136
Ahedo, J., 602
Ahmadzadeh, A., W163, W192
Ahmed, H. F., T72
Ahn, D., 292
Ahn, J., W72, W73
Ahn, J. H., TH144
Ahn, S. I., W73
Aiken, G. E., TH12, 545
Ait-Saidi, A., 500
Ajala, L. C., 194
Ajmone-Marsan, P., TH114, 683
Ajuwon, K. M., T169
Akay, V., W212
Akers, R. M., TH65, TH68, TH108, 54, 660, 684
Akhtar, P., 98, 731
Akinsola, O., W194
Akoh, C. C., 513
Alava, E., 82
Albanell, E., T212, 498, 821
Albarrán, B., W96
Alberti, K. A., 353
Albertini, T. Z., 215
Albrecht, C., TH105, TH107
Albrecht, K. A., T103
Albuquerque, L. G., W41, W45
Aldrich, J. M., 216, 221
Aldridge, B. E., TH93, 698
Alemu, A. W., W202, 92
Alewynse, M. G., 265
Alex, A., 86
Alexander, M., 514
Al-Hassan, M. J., W191
AlIbrahim, R., 741
Alikhani, M., 91, 584
Alipanah, M., T14
Allee, G. L., 711, 774
Allen, J. C., T289
Allen, M. S., W216, 580, 743
Allen, R. H., TH235
Alleoni, G. F., TH82
Almeida, O. C., TH288
Alonso, L., W83
Alric, M., T149, T167, W119, W262
Altay, N., W80
Altunbas, K., T179, T180
Alvarado, G., TH101
Aly, S. S., 482
Amadori, M., W8
Aman, I. M., T72
Amanlou, H., T190, T201, W195, TH251
Amaral, R. C., T273, TH288, TH290, TH292
Amaral-Phillips, D. M., 431
Amaya-Llano, S. L., W78, TH25
Ames, M. S., 170
Amir, R., W31
Amodeo, P., T82
Ampuero, S., T105
Amrhein, M., T105
Amstalden, M., T186, 283, 284, 715, 719
Amstalden, M. A., W155
Anand, S. K., 21, 47
Anchamparuthy, V. M., TH178, TH180
Anderson, D. B., 357
Anderson, D. C., 628
Anderson, G., W239
Anderson, J. D., 548
Anderson, L., 432
Anderson, M. J., T126, 293, 689
Anderson, R., 193, 706
Anderson, R. A., 699, 708
Anderson, R. C., T76, T256, W275, 395
Anderson, R. J., 482
Anderson Alexander-Huerta, C., 495
Andrade Reis, R., TH47
Andrae, J., 271, 545, 599, 659
André, G., 591
Andrew, S. M., W199
Andrews, J., 469
Andries, K. M., 346
Ange-van Heugten, K. D., TH136
Anguita, M., T141, W119, TH152
Anil, L., W295, W296, W297
Anil, S. S., W295, W296, W297
Animut, G., T282
Anthony, R., 256
Anthony, R. V., TH80
Antonio, L. E., W240
Apgar, G., W131, TH151
Apparao, M. D., T9, T10, T12
Apple, J. K., T109, T110, T112, T113
Applegate, T. J., 657
Appuhamy, J. A. D. R. N., 60
Aragon, F. L., TH185
Arana, M., 313
Aranda-Munguia, A., 764
Araujo, D. B., 376
Araújo, M. J., T276
Araujo, R. C., TH290
Araújo, R. R., W165
Araujo, R. S., T119
Araujo Neto, F. R., W43
Arav, A., TH179
Archibeque, S. L., W21, W242, 304
Archimède, H., TH215
Arece, J., TH215
Argüello, A., 822
Arias, R. A., 755
Arieli, A., TH179
Ariño, L., T114, 354
Ariza-Nieto, C., T138
Armentano, L. E., T203, 499
Armstrong, D. V., W178
Arnold, M., 140

- Arnould, V. M.-R., 613, 614
 Arquet, R., TH14
 Arrigoni, M. D. B., T122, W53, W249,
 W250, W265, W272, W273, TH222, TH227
 Arriola, K. G., W196, 598
 Arshami, J., T181
 Arthington, J. D., W154, TH48, TH50, 323,
 375, 376, 575
 Arthur, P. F., 770
 Aryana, K., W81, W84, TH29, TH32
 Aryana, K. J., TH27
 Arzola-Alvarez, C., W112
 Arzola-Alvarez, C. A., W113
 Asadi, A., T192
 Asghari, M. R., T13
 Ashokkumar, M., 646
 Askar, A. R., T274
 Asmare, A., T274
 Aso, H., 610
 Aspin, P., 454
 Ata, A., T174, W169
 Atkins, J. A., W162, W168, W170, 503
 Atkinson, R. L., TH151
 Atzori, A. S., 229
 Augspurger, N., TH150
 Augspurger, N. R., 564
 Augustin, M. A., 643
 Austin, B. R., W154, 375
 Avci, G., T179, T180
 Avellaneda-Cevallos, J. H., W230, W255
 Avendaño, S., 408
 Ávila-Rodríguez, E., TH51
 Avilés, F., W96, W97
 Ax, R. L., W191
 Ayala-Martinez, A., T241
 Ayangbile, G., 38
 Ayers, M. W., W192
 Ayres, H., W158, W165
 Azain, M. J., T156, W139, 197, 702
 Azcarate-Peril, M. A., 427
 Azevedo, J. A. G., T250, T251
 Aziza, G.-B., W127
 Azzaro, G., 187, 326, 813
- B**
- Babinszky, L., W114, W115, W116, 704
 Babu, R., TH216
 Bacciu, N., 527
 Bach, A., W5, W176, TH208, TH213,
 TH232, 581, 602, 675
 Bach Knudsen, K. E., 698
 Bacheller, L. R., T6
 Bachman, K. C., TH116, 456
 Bader, J. F., 652, 722
 Badinga, L., 323, 324, 607
 Bae, C., W174
 Bae, D., TH59
 Bae, D. R., T36
 Bagnell, C. A., TH95
 Bah, B., T272
 Bahrami, H., TH217
 Bahrami-yekdangi, H., W200
 Bailey, C. L., W146, TH165
 Bailey, J. D., 572
 Bailey, R., 241
 Baker, A., T164
 Baker, D. H., TH16, 210
 Baker, K. M., 208
 Baker, M. J., 309, 463
 Baker, R., 322, 754
 Bakhtiarizadeh, M. R., T16
 Bal, M. A., W211, W212
 Baldi, A., TH107, 810
 Baldin, S. R., T122, W108, W109, W249,
 W250, W265, TH222, TH227
 Baldwin, VI, R. L., TH252
 Balieiro, J. C. C., TH281
 Ballagh, K. E., 660
 Ballam, J. M., T189
 Ballard, C. S., W205, W207, TH4, 343
 Ballou, M. A., W221, TH214
 Balsalobre, M. A., W251
 Balsalobre, M. A. A., T118, TH44
 Balsbaugh, R., 294
 Bambou, J. C., TH14
 Bani, P., W228
 Bannantine, J. P., 50
 Bannerman, D. D., 811
 Bannerman, J., TH146
 Bannink, A., TH7, 189, 308, 591, 797
 Banskalieva, V., T42
 Banta, J. P., TH205, 458
 Bañuelos, H. G., W275
 Banz, W., T169
 Barajas, R., W266, W267
 Barb, C. R., T187
 Barbano, D. M., TH19, TH20, TH24, 510
 Barbosa, F. F., TH132, 697
 Barbosa-Canovas, G., 647
 Barbosa-Canovas, G. V., 645
 Barducci, R. S., T122, W108, W109, W249,
 W250, W265, TH222, TH227,
 Bargo, F., 486
 Barkley, N. M., W143
 Barling, K. S., W27
 Barnes, J., T158
 Barnhill, J., T70
 Barry, K., 175
 Barton, B. A., W219
 Barton, C. L., T173
 Barton, H. M., W299, TH167
 Bas, S., W158
 Bashtani, M., T15, T140
 Basirico, L., TH164
 Bass, B. E., 787
 Bassin, S., W98
 Bastin, C., 612
 Bastos, J. P. S. T., T122, W108, W109,
 W249, W250, W265, W272, W273,
 TH222, TH227
 Bateman, II, H. G., 216, 221
 Bates, G. E., TH40
 Bates, R. O., 413, 531
 Battacone, G., T54, T211, T246, T254
 Battaglia, M., TH245
 Bauer, M. L., T228, TH98, 287
 Bauman, D. E., T195, W183, 51, 640, 680,
 682
 Bauman, L. M., TH55
 Baumgard, L., 451
 Baumgard, L. H., TH161, TH163, TH206,
 86, 88, 373
 Baxa, T. J., 459, 460
 Bayão, G. F. V., T121
 Beagley, J. C., 143
 Beal, W. E., 502, 504
 Bear, D., 436, 437
 Beattie, C. W., 411
 Beauchemin, K. A., T199, W254, TH243, 39,
 55, 788
 Beck, P., TH38, 95, 96
 Beck, P. A., 391
 Becker, P. M., TH7
 Beckford, N. C., 758
 Beckman, D. W., 629
 Bedford, M. R., TH16
 Bee, G., T105, 296
 Beede, D. K., 327
 Beermann, D. H., 688
 Beguesse, K., T278
 Behnke, K. C., 779, 780
 Behrends, S. M., 389
 Beier, S. L., W272, W273
 Beitz, D. C., 50, 154, 727
 Beker, A., T274
 Bélanger, G., 185, 186
 Beliciu, C. M., TH24
 Belo, C. J., TH112
 Belvedere, G., 187, 539, 815
 Ben Chedly, H., 452
 Benchaar, C., T208, T209, T210, T219,
 W217, W254, 185, 186
 Bene, S., W32, W36
 Benes, S. E., W185
 Benevenga, N. J., W218
 Benítez, G., TH101
 Bennett, G. J., 249
 Bennett-Wimbush, K., T292
 Benson, M. E., 314
 Benton, J. R., 219, 306, 734, 790, 798, 802
 Benyshek, L. L., 4
 Benz, J. M., 562
 Benz, S. A., 266
 Bequette, B. J., W138
 Berardinelli, J. G., 479, 480, 572
 Berchielli, T. T., T118, T191, T243, T281,
 W251, TH44, TH47, TH224, TH231
 Bercovitch, F. B., 179
 Beresford, T. P., 644
 Berger, L. J., 132
 Berger, L. L., W20, W237, 211, 278, 803
 Bergeron, R., 242
 Bergstrom, J. R., T128, TH124, 158
 Bermudez-Aguirre, D., 645, 647
 Bernabucci, U., T4, W8, W228, TH164, 246
 Bernal-Barragán, H., W104, W105, TH294,
 440
 Bernal-Canseco, A., 723
 Bernard, J., 59

- Bernard, J. K., 94
 Bernardi, F., 153
 Berry, D. P., 73
 Berry, E. D., 311
 Berry, T. K., 40
 Berthiaume, R., 185, 186
 Bertin, G., 105
 Bertocchi, L., T4
 Bertoni, G., T223, T224
 Bertram, M. G., T85
 Bertrand, A., 185, 186
 Bertrand, J. K., T37, W46, 171, 525, 630
 Bessen, R. A., 572
 Betancourt, L., T138
 Beveridge, H. L., TH85
 Bewley, J. M., TH204, 14, 655, 656
 Bey, R., T10
 Bezerra, L. A. F., W45
 Bhatia, E., 41
 Biagi, G., T79, W231
 Bianchett, F. J., TH106
 Bidner, T. D., TH149
 Biehl, M. V., TH278, TH289, TH291,
 TH292, TH293
 Bielmann, V., 387
 Biffani, S., 619
 Bigelow, J. P., 372
 Bigeriego, M., 658
 Bilby, T. R., W178, 108
 Bin, S.-Y., TH156
 Bionaz, M., T178, TH103, TH114, 278, 606,
 609, 678, 679, 681, 683
 Biourge, V., 176
 Bird, S. L., W166
 Bischoff, K. M., W4
 Bisinotto, R., W221
 Bissonnette, N., T33
 Bitencourt, L. L., W208, TH262
 Bittante, G., 15, 616
 Bixby, D., 759
 Blache, D., 73
 Black, J. L., 791, 792
 Black, P. L., 214, 804
 Blackburn, H., W50, 570, 759
 Blanch, M., T238, 581
 Blanco, B., T114, 354
 Bland, J. R., 444
 Blanquet-Diot, S., W262
 Blasco, A., W41
 Blezinger, S. B., W18
 Block, E., 106, 329
 Block, J., TH63, TH183
 Block, S., 59
 Block, S. S., T240, TH41
 Bloemhof, S., 355
 Blount, A. R., T81, 598
 Bo, M. J., W125, W140, W287, W289
 Boe, F., 384
 Boeck, G., T89, T94
 Boehlje, M. D., 655, 656
 Boeneke, C. A., TH27
 Boesche, K., T27
 Bogden, R., W150
 Boggs, D. L., 147
 Bohaty, R. E., W62
 Bohmanova, J., 9, 12
 Boisclair, Y. R., T183, 455, 680, 682
 Boissonneault, G., T33
 Boland, H. T., TH39, TH203
 Boland, T. M., T247, W206
 Bolden-Tiller, O., T275
 Boler, D. D., 294, 295
 Boling, J. A., TH74, TH75, TH79, 2, 3, 76,
 78, 665, 669
 Bolte, J. W., W270, 392
 Bömcke, E., TH92
 Bond, J. P., 449, 554
 Bondioli, K., 104
 Bonelli, P., T211, 117
 Bonilha, S. F. M., TH82
 Bonilla, L., TH183
 Bonnette, E. D., T294
 Bor, T., TH23
 Borda, T., T63
 Borg, R. C., W245, W246
 Borger, M. L., W159
 Borgjink, S., 203
 Bork, N. R., T228
 Bornt, L. A., T5
 Borquis, R. R. A. B., T25
 Boschini-Figueroa, C., W92
 Bosma, B., 238
 Boss, D. L., 628
 Botermans, J., TH61
 Bottje, W. G., 769
 Bouattour, M. A., T212
 Boucher, S. E., TH268, 588
 Bounhamous, R., 452
 Boutinaud, M., 452, 455
 Bovenhuis, H., 611, 615
 Bowers, S., 317, 573
 Bowers, S. D., TH181
 Bowker, B., T125
 Bowman, G. R., W207, 333
 Boyd, J., 59
 Brabes, K. C. da S., T83, T96
 Brad, A. M., TH162
 Bradford, B. J., W203, 53, 80, 81
 Bradley, C. L., 201, 787
 Brady, H., 506
 Brady, M. B., W179
 Braga Arcuri, P., TH231
 Braga Malheiros, E., TH47
 Brandherm, M., 369
 Brandt, R. C., TH256
 Brandts, L., TH145
 Brannock, S., 247
 Brauch, A., TH225
 Bravo, D., W262, W268, W271, 738, 739
 Breen, S., 570
 Breen, S. M., 571
 Bregendahl, K., 292
 Brendemuhl, J. H., W102
 Brennan, C. S., 485
 Brennan, K., W261
 Brew, M., 598
 Brewer, M. S., 294
 Briczinski, E. P., 44
 Bridges, A. J., 58
 Bridges, K. M., 131
 Brigham, B. W., 746, 749
 Brighton, C. J., T38
 Brignac, B., TH29
 Brink, Z., TH175
 Brisson, G., W86
 Brito, A. F., 185, 186
 Brito, M., W185
 Broadbent, J., 46
 Broadbent, J. R., T38, 23, 45, 135
 Broaddus, B., T67
 Broderick, G. A., T221, W142, W184,
 W218, TH271
 Brogna, N., T79, W231
 Brooks, M. A., T237, 149
 Brooks, S., 31
 Brooks, V. J., 52, 155
 Broome, A. I., TH131
 Brothersen, C., T58, 49
 Brouk, M. J., 80, 81
 Brown, D., 359
 Brown, E. G., 212
 Brown, J. L., 399
 Brown, K. R., TH74, 2, 3, 78, 669
 Brown, M., 759
 Brown, M. S., 148
 Brown, W., W131
 Brown, W. H., 547
 Brown-Brandl, T. M., 724
 Browne-Silva, J., T252, 336
 Bruckmaier, R., TH107
 Bruckmaier, R. M., T185, TH105, TH112,
 TH113, 75, 455, 822
 Bruns, K. W., 668
 Brusveen, D. J., W172
 Bruwier, D., 614
 Bryer, P. J., TH171, 243, 244
 Bu, D. P., T2, T29, T171, T172, T205, T206,
 T207, T215, T218, T230, T231, T232,
 T255, T279, W90, W224, W277, W278,
 W279, W280, TH70, TH206, TH219,
 TH233, TH236
 Buchanan, D. S., 362
 Bucholtz, H. F., TH255
 Buckner, C. D., 802
 Budge, S. M., 24
 Budinich, M., 46
 Bulbul, A., T179, T180
 Bulut, O., T174
 Bundy, J., TH127, 199, 712
 Bungenstab, E. J., TH42, TH45, TH198,
 TH199, TH200, TH201
 Bunter, K., 536
 Buntyn, J. O., 389
 Burciaga-Robles, L. O., W4, 390, 393
 Burden, B. T., 351
 Burdick, N. C., T173, 374, 577, 578
 Burges, J. C., W268
 Burk, A. O., 446
 Burk, R. F., 467
 Burke, J. M., T271, 494
 Burke, S. L., 178
 Burkey, T. E., T170, 563
 Burns, J., 544
 Burris, W. R., TH74
 Busby, W., 322

Busch, D. C., 652, 717, 718, 722
Buschinelli de Goes, R. H. de T., T83, T96,
T234
Bush, L. P., 2, 3
Busso, F., 486
Butler, G. M., 671
Butler, W. R., 77
Butzler, R. E., TH4
Buyukunal Bal, E. B., W211

C

Cabral, C., W87
Cabrera, V. E., 654
Caccamo, M., T55, 326, 540
Cáceres, O., TH215
Cady, R. A., W183
Cady, R. D., T189
Cai, H., 23, 46
Caja, G., T212, 105, 347, 498, 500, 760, 821
Caldari-Torres, C., 607
Calder, A. G., TH250
Caldwell, J., T80, 597
Caldwell, L. C., 74, 374, 577, 578
Callaghan, M., 807
Callan, J. J., T150, W120, W286, 703
Callaway, T. R., T76, T256, 395, 542
Calsamiglia, S., T238, T239, W215, W271,
581, 588, 675, 738, 740, 756
Camacho, L. M., W97
Camou, J. P., 557
Campagnoli, A., T227, T253
Campbell, B. T., TH40, TH41
Campbell, J., TH8
Campbell, J. M., W1
Canavesi, F., 617, 619
Canesin, R. C., T281
Cangiano, C. A., T213, W197
Cannas, A., 229, 384, 815
Cannon, J. B., W253
Cano, A., W88
Cantet, R., 626
Cao, Z., W181
Capel, M. B., 248
Capote, J., 822
Capper, J. L., T195, W183, 51
Cappio-Borlino, A., 618
Capsel, R. T., 484
Capuco, A. V., TH109, 54, 450, 684, 686
Caraway, E., 310
Cardim, S. T., T234
Cardoso, B. L., W157
Cardoso, D., W96, W97
Cardot, J. P., W119
Cardot, J.-M., T149
Cardozo, P. W., T239
Carletti, M., 163
Carlos-Valdez, L., W4
Carlson, D. B., TH117
Carné, S., 347, 498, 500
Carney, E. E., 563
Carrier, P., 530
Caron, N., 263
Carpenter, B. B., 458
Carpenter, D. M., W149
Carpenter, E. A., 805
Carpino, S., 187, 326, 539, 815
Carr, D. L., TH258
Carr, S. N., 295, 711
Carrilho Canesin, R., TH231
Carro, M. D., T248, TH212
Carroll, J. A., W27, TH2, 152, 374, 575,
577, 578
Carroll, T., 648
Carson, M. E., 248
Carstens, G. E., W24, W275, W276, 212,
769
Carter, B. H., 85, 318, 752
Carter, F., TH230
Carter, J. N., 598
Carter, M. P., W205, TH4
Carter, S., TH127, 199, 469, 712
Carter, S. D., 693
Carvalho, L. F. B., 313
Carvalho, T. S. M., T222
Casagrande, D. R., TH37, TH44, 438
Casals, R., T212, 498, 821
Casarez, E., W174
Casas, E., W54
Case, L. P., 414
Casellas, J., W52, 760
Casey, D. S., 650
Casey, T., 687
Casper, D. P., T98, 38, 657, 817
Cassandro, M., 15
Cassandro, Martino, 616
Cassell, B. G., 127, 761, 765
Cassill, B. D., TH99
Castano-Tostado, E., TH25
Castillejos, L., 740
Castillo, M., T56
Castillo, R., 707
Castillo-Castillo, Y., W112
Castillo-Gonzalez, H. A., W113
Castonguay, F. W., TH273
Castonguay, Y., 185, 186
Castro, B. I., TH283
Castro, C. B., TH166
Castro, J. J., 94
Castro, N., T185, 822
Castro del C, N., W58, W59
Cate, R. E., 445, 549
Caton, J. S., 726
Catunda, F., 194
Cavali, J., T120, W248
Cavender, K. B., 253
Cavinder, C. A., TH97, TH98, 286, 287
Cawdell-Smith, J., 753
Cecava, M. J., 803
Cecchinato, A., 530
Cedeño, E. M., TH67
Celik, H. A., T179, T180
Centeno, C., 206
Ceron Munoz, M. F., T25
Cerri, R. L. A., W155, TH184
Cerrillo-Soto, A., 440
Cerrillo-Soto, M. A., W104, W105, W106,
W238, W258, TH51, 495
Cervantes, B. J., W266, W267
Cervieri, R. da C., W265, TH222
Cespedes, F., TH133, TH134
Cetz-Solis, F., W57
Chae, B. J., T129, TH153
Chagas, L., 73
Chahine, M., T86
Chalupa, W., TH266
Champagne, C. P., 425
Champod, M., W262
Chandran, S., 138
Chang, C. S., W122
Chang, J., W174
Chang, L., W174
Chapinal, N., W193
Chardulo, L. A. L., W53, W265, TH222
Chase, C., 747
Chase, Jr., C. C., 575
Chase, C. C. L., 746, 748, 749, 750
Chase, L. E., T265, W186, 93
Chauhan, J., 649
Chaves, A. S., W236
Chaves, A. V., T208, T209, T210, W217, 728
Chaves, M., T286
Che, M. T., T163, 368, 773
Chebel, R. C., W6, W155, W171, W188,
W189, W191, W192, TH184
Cheli, F., T253, 810
Chen, C., 696
Chen, C. C., T131
Chen, C. H., TH60
Chen, C. Y., 532, 533, 535
Chen, D. G., 721
Chen, P., W24
Chen, S. S., T272
Chen, T. C., 179
Chen, Y. J., T142, T145, T147, T151, T152,
T153, T154, W137, TH122, TH123,
TH140, TH143, TH144
Cheng, H. W., 382
Cheng, J. B., T2, T29, T171, T172, W90
Cherney, D. J. R., W101, 168
Cherney, J. H., W101
Cherry, N. M., T295
Chesnais, J. P., 263
Chessa, Stefania, 616
Chester-Jones, H., TH187, TH188, TH189,
TH190, TH191, TH192, TH193, TH194
Chestnut, A. B., TH258
Chettri, R. S., W179
Chi, F., T131
Chiba, L. I., W179, TH133, TH134
Childs, S., TH230
Chilibroste, P., W185
Chilliard, Y., T202, 328
Cho, J. H., T142, T144, T145, T147, T148,
T151, T152, T153, T154, W137, TH122,
TH123, TH140, TH141, TH143, TH144,
Cho, K. S., TH117
Cho, S. B., TH135, TH142
Choat, W. T., 461
Choi, C. B., 63

- Choi, C. W., TH135, 63
 Choi, I. S., 413
 Choi, J. K., W220
 Choi, J. Y., T129, TH153
 Choudhary, R. K., TH109
 Chouinard, P. Y., T208, T209, T210
 Christenson, L., 163
 Christiansen, D., 475
 Chromiak, A. B., TH207
 Chu, W. Y., TH156, TH157, TH158, TH160, 781
 Chua, W., TH154
 Chung, I. B., TH135, TH144
 Chung, K. Y., TH73, TH76, TH77, TH78
 Chung, R. H., T196
 Chung, W. T., TH135
 Chung, Y.-H., TH254
 Cibils, A. F., W93, W94
 Cintora, M., W294
 Claeys, M. C., 434
 Clapham, W., 464, 465
 Clapham, W. M., TH43
 Clapper, J. A., TH94
 Clare, D. A., 20
 Clark, D., 454
 Clark, D. S., W145
 Clark, L. M., TH266
 Clark, N., 329
 Clark, R. M., W199
 Clark, S., 649
 Clavero, T., W91
 Clay, J. S., T1, T22
 Cleere, J. J., 458
 Cleveland, M. A., 406
 Clevenger, D. D., TH284, TH285
 Cline, M. K., W98
 Cline, P. M., 702
 Cloninger, M. T., TH87
 Close, W., 194
 Coblentz, W., T80
 Coblentz, W. K., T77, TH237, 270
 Coburn, A. D., 11
 Cockett, N., 759
 Coffey, K., T80, 597
 Cohen, N. D., T173
 Cohick, W., 553
 Coker, O. N., W49, W194
 Cole, J. B., T6
 Cole, L. C., TH161
 Cole, N. A., 148, 310, 693, 732
 Colin-Negrete, J., TH294
 Collier, J., 451
 Collier, R., 451
 Collier, R. J., TH111, TH163, 86, 108
 Collins, E. D., 568
 Collins, J. R., TH279
 Colombatto, D., W268
 Colombini, S., T82, W99, TH271
 Columbus, D., 191
 Colvin, C., 288
 Combs, D. K., T103, W95, TH53, TH54, TH55, TH56
 Comin, A., 616
 Confer, A. W., 393
 Conforti, V., W150
 Coniglio, V., T286
 Connor, E. E., W9, 119, 457
 Connor, L., 27
 Contreras, G., W241, TH166, TH283
 Contreras-Govea, F. E., T90
 Cook, D., 369
 Cook, D. R., 192
 Cook, M. E., 596
 Cook, N. B., 83
 Cooke, F. N. T., 471
 Cooke, R. F., T182, W154, 375, 376
 Cooper, J. B., T1, T22
 Cooper, T. A., 245
 Copedge, K., T278
 Corah, L. R., 61, 146
 Corbellini, C., 486
 Corbin, M. J., 218
 Corl, B. A., W55, 110, 664, 677
 Cornick, N. A., 157
 Corona, L., TH210
 Corral-Flores, G., W111
 Correa, J. A., T104, 242
 Corredig, M., W74, 514
 Corrigan, B., T166
 Corriher, V. A., 600
 Corte, R. R. P. S., W256, TH280, TH281
 Côrtes, C., T208, T209, T210, T219, T220
 Cortina, A. R., TH148
 Cortina, R., TH276
 Corum, L., TH172
 Costa, C., W108, W109
 Costa, M., TH31
 Costa, P. B., T121
 Costa, R. G., T276
 Costanch, K. W., W205, 343, 583
 Couldrey, C., 453
 Coupland, J., W68
 Courtney, C. H., 159
 Couto, V. R. M., T120
 Coverdale, J. A., TH97, TH98, 286, 287
 Cowieson, A., 190
 Cowles, K. E., T97
 Cox, B. G., T66
 Cox, R., W239
 Cox, R. B., TH125
 Craig, T. M., 758
 Crawford, H. M., TH110
 Crenshaw, J., TH8
 Crenshaw, M., 475
 Crenshaw, T. D., 197
 Crestani, M., T227
 Cromwell, G. L., T168, W117, TH16, TH125, 197, 298
 Cropper, S. L., TH22, TH30
 Crovetto, G. M., T82
 Crowe, T., 242
 Cruppe, L. H., W157
 Cruz, G. D., W22, 313
 Cruz-Diaz, S., T59
 Cruz-Guillen, D., W112
 Cruz-Vazquez, C., W57
 Cucki, T. de O., TH222
 Cuesta, P., W83
 Cueva, O., TH32
 Cufre de Lenardón, G., T286
 Cui, W., T279
 Culbertson, M., 532, 535
 Culham, A. B., 314
 Cummins, K. A., W149, TH133, TH134
 Cummins, L. J., 670
 Cunha, A. P., W158, W165
 Curbelo, J., T3, 573
 Curi, R. A., W53
 Curry, E., W302, TH167
 Cuteri, A., T4
 Cutler, E. A., TH114, 683
 Cutler, S. A., 157
 Cyriac, J., TH263, 60
 Czarnecki-Maulden, G., 415
- ## D
- da Cunha Leme, T. M., W25, W26
 da Gama, M. A. S., TH106
 da Silva, D. C., T219, T220
 da Silva, T. C. B., T122, W108, W109, W249, W250, W265, TH227
 Da Silva-Mariante, A., W57
 Dahl, G. E., TH110, 457
 Dahlen, C. R., W10, W166, W167, W260
 Dahlquist, J. M., 211
 Dai, Q. Z., W123
 Dailey, J. W., TH2, 374, 577, 578
 Dailey, R. A., TH172
 Dákay, I., W17
 Dal Zotto, R., 15, 616
 Dalton, J. C., W192
 D'Ambrosio, F., TH107
 Damodaran, S., 512
 Dana, G. R., TH16
 Danesh Mesgaran, M., T181, T204, T225, T233, T244, T245, W148, W225, W257, TH209, TH211, TH220, TH221, TH248, TH272
 Daniel, J. A., T287, 668
 Daniel, M. J., T124
 Danieli, P. P., W228
 Daniels, K., TH13
 Daniels, K. M., TH68, 54, 684
 Dann, H. M., W205, W207, TH4, 343, 583
 Dardenne, P., 612, 614
 Dare, A. L., W49, W194
 Darien, B. J., 52, 155
 DaSilva, L. O. C., W40
 Datta, J., 162
 Daubert, C. R., 20, 138
 Davidson, S., W222
 Davila El Rassi, G., T42
 Davis, B. L., TH171, 243, 244
 Davis, E., T164
 Davis, K. C., 628
 Davis, M., W101
 Davis, M. P., T177
 Davis, M. S., W246
 Davis, N. E., 100, 218
 Davis, S., 371
 Davis, T. A., 279
 Davis Rincker, L. E., 237

Dawson, H. D., 696
 Dawson, K. A., TH259, TH260, TH261, TH266, 88
 Dawson, L. J., 345
 Day, M. L., TH278
 Dayton, W. R., TH76, TH77, TH78
 de Abreu, C. O., T83, T96
 de Albuquerque, L. G., T25
 de Almeida, G. D., T234
 de Bastos, J. P. S. T., W26
 De Beni Arrigoni, M., W25, W26
 de Faria, M. H., TH81
 de Godoy, M. R. C., W62, 174, 420
 De Hario, M., T86
 de la Chevrotière, C., TH14
 De La Llata, M., T162
 de Lange, C., 771
 de Lange, C. F. M., W135, 191
 de los Campos, G., 530, 625
 De Marchi, M., 15, 616
 de Mattos, J. F., TH44
 de Medeiros, S. R., TH253, 215
 de Melo, R. C. M., W208
 de Oliveira, B. M. L., W208
 de Oliveira, C. R., W25, W26
 de Oliveira, D. E., TH106, TH253
 de Oliveira, E. R., T83
 de Oliveira, H. N., T122, W41, W43, W53, W249, W250, W265, W272, W273, TH222, TH227
 de Oliveira, I. M., T120
 de Oliveira, L. A., T234
 de Oliveira, M. P., T122, W25
 De Oliveira Juchem, S., T263, W185, TH106
 de Ondarza, M. B., T88
 de Passillé, A. M., W193
 de Queiroz, A. C., T121, TH81
 de Resende, F. D., T121, TH81
 de Rodas, B., 359, 712
 De Roos, A. P. W., 409
 de Silva, T. C. B., TH222
 de Toledo Piza Roth, A. P., TH224
 de Toledo Piza Roth, M., TH224
 de Vega, A., T243
 De Vries, A., W187, W190, 8
 De Vries, L., TH115, 687
 Dean, D. W., 192
 Dean, M. M., 285
 DeAvila, D., W150
 Decandia, M., T246, 384
 Dechow, C. D., TH196, 172
 Declerck, J. C., 789
 DeDecker, A. E., 378
 Deeb, N., 406
 Deen, J., W295, W296, W297
 DeFrain, J. M., 102
 DeFreitas, J. A., W40
 Dehareng, F., 612
 Dehghan-Banadaky, M., T242, W200, TH217
 Deihl, H. A., T284
 DeIuliis, J. A., TH59
 DeJarnette, J. M., W164, TH173, TH174, TH176, 603
 Dekel, I., TH179
 Dekkers, J. C. M., T35, 407, 521, 527
 DeLaney, D., 212
 deLange, C. F. M., 191
 Delgado, R., TH215
 Dell'Orto, V., T253, TH107,
 Delmonte, P., T102
 Delmore, R. J., 458
 Demers Caron, V., TH273
 Demétrio, D. G. B., W157
 Deng, D., TH154
 Deng, L. F., TH70
 Denis, S., W119
 DePeters, E. J., T263, W173
 Der Bedrosian, M. C., T95, W204
 DeRouchey, J. M., T128, W132, TH124, TH132, TH145, 158, 195, 562, 697, 775, 777, 778, 786
 Desilva, U., W147
 DeSouza, J. C., W40
 Desrochers, A., TH239
 Detmann, E., T120, TH218
 Detweiler, G. D., T274
 Devant, M., TH208, TH213, TH232, 581
 Devillard, E., TH269
 Devillers, N., T104
 deVries, A., T67
 DeVries, T. J., W198, W201
 Dewey, C., 242
 DeWolfe, T., 155
 Dhali, A., TH178
 Dian, P. H. M., T118, T191
 Dias, B., 424
 Dias, Jr., G. S., W208, TH262
 Dias, R. S., T235
 Diaz, D. E., T69, T70
 Diaz, H. L., 334
 Díaz, T., 672
 Diaz-Muniz, I., 46
 Diaz-Solis, H., T84
 Dib, M. G., W43, W53
 DiCostanzo, A., W10, W25, W26, W166, W260, W272, W273
 Dierenfeld, E. S., 634
 Dietz, A., TH151
 Dijkstra, J., 189, 203, 308, 337, 591, 797
 Dikeman, C., 633
 Dikeman, C. L., 178
 Dikeman, M. E., T124, 804
 Dikmen, B. Y., 82
 Dikmen, S., 82, 84
 Dilling, S. C., 550
 Dillwith, J. W., 393
 DiLorenzo, N., W10, W25, W26, W260, W272, W273
 Dimauro, C., 117
 Ding, S. T., TH60
 Dingwell, R., T10
 Dingwell, R. T., 386
 Dinh, S., 89
 Dinsmore, P., 388
 Dirandeh, E., W151, W152
 Dissanayake, M., 511
 Dittmar, III, R. O., TH49, 74
 Divakala, K. C., TH133, TH134
 do Amaral, B. C., 323, 324, 457
 Doane, P., 739
 Doane, P. H., T240, 803
 Doepel, L., W202, 92
 Doherty, M., 741
 Dohme, F., TH242, 188
 Doig, M. J., TH79
 Donaghy, D. J., TH241
 Donaldson, S. C., T100, 653
 Dong, X. L., T2, T29, T171, T172, W90
 Dong, Z. Y., T231
 Donkin, S., TH13
 Donkin, S. S., TH3, TH66, TH67, 492
 Dorantes, E., W96
 Dorshorst, A. E., T85
 Dorton, K. L., 357, 742
 dos Santos, G. T., T220
 dos Santos, J. F., TH262
 Dosti, B., 538
 Doumit, M. E., 413
 Dove, C. R., T156, W139, 197, 702
 Dover, H., TH115, 687
 Dowler, L. E., TH87, TH96
 Doyle, S., 156
 Dozier, III, W., 292
 Drackley, J. K., T8, T178, T198, 609, 667
 Drake, M. A., T38, T41, T43, T46, T53, W71, TH19, TH20, 134
 Drake, S. L., T43
 Dray, S. M., TH207
 Drennan, M. J., W269
 Dreschel, N., TH91
 Drennoski, M. E., 733
 Dritz, S. S., T128, W132, TH124, TH132, TH145, 158, 195, 562, 697, 775, 777, 778, 786
 Driver, J. D., W37, W38, W39
 Drouillard, J. S., T75, W270, 64, 214, 218, 338, 339, 344, 490, 737, 804
 Du, M., 277, 691
 Duarte Messana, J., TH231
 Dubois, S., T105
 Dubovi, E. J., 483
 Duckett, S., 599
 Duckett, S. K., TH43, TH71, TH72, 464, 465
 Ducrocq, L., TH269
 Duff, G. C., TH161, 373
 Duffield, T. F., 225, 248
 Duffy, P., 741
 Dumon, H., 176
 Dunne, C. P., 647
 Dunnington, E. A., 502, 504
 Dunsford, B., 175
 Dunshea, F. R., 670, 671, 744
 Dupas, M., TH126
 Durand, H., W294
 Durosoy, S., TH126
 Duske, K., T216, T217
 Dutra de Resende, F., TH224
 Duttlinger, A. W., W132, 786
 Dwivedi, C., 41
 Dye, T. K., 589
 Dyer, P., W174
 Dzakuma, J., 759
 Dzakuma, J. M., 758

E

- Ealy, A. D., W144, 470, 471
 Earley, B., W269, 156
 Earleywine, T. J., 667
 Easter, R. A., 299
 Eastridge, J., T125
 Eastridge, M. L., 736
 Ebert, R. A., T198
 Eckerle, G. J., TH80
 Eckert, C. E., 547
 Eckert, J. V., W102
 Edrington, T. S., T76, T256, 395
 Edwards, D. B., TH79, 413
 Edwards, J. L., 145
 Edwards, L. N., 357
 Edwards, M. S., 636
 Edwards, T. D., T196
 Eftekhari, M., T115, T116
 Eguchi, T., W205, 583
 Ehrhardt, R. M., T183, T184
 Eicher, S., T73, TH13
 Eicher, S. D., W11, W263, TH3, 655, 656, 751
 Einstein, M., W263
 Einstein, M. E., TH204
 Eisemann, J. H., TH131
 Eitenmiller, R. R., 513
 Eklund, M., 209
 El Faro, L., T25
 Elia, D., W228
 Eliardi, A., T53
 Elias, A. N., T175
 Elias-Iglesias, A., W112
 Elizondo-Salazar, J. A., T100, W1, W2, W3, W92, 118, 653
 El-Kadi, S. W., W253
 Elkins, D., 70
 Eller, W. S., TH86
 Ellersieck, M., T268, TH225
 Ellersieck, M. R., 717, 718
 Ellis, J. L., 308
 Ellis, R. L., W18
 Ellis, S., TH65, 599, 660
 Ellis, S. E., TH108
 Ellis, W. A., 179
 El-Mogazy, M., 26
 Elmore, J. B., T60, T61, W23
 Elmore, M. F., T60, T61, T62
 Elsasser, T. H., W9, 152
 El-Sayed, M., 26
 Ely, D. G., 351, 669
 Ely, L. O., T67, 330
 Elzo, M. A., T23, W34, W35, W37, W38, W39
 Emiola, I. A., T165
 Endres, M. I., W175, W180
 Engelsma, K. A., 355
 Engle, T. E., W21, W242, 100, 101, 213, 357
 Engle, T. L., 321
 English, C., 501
 Engstrom, M. E., 742
 Enns, R. M., 170, 357, 412, 746, 747, 748, 749, 750
 Epifani, G., T246
 Epstein, D. L., 360
 Erdman, R. A., T102, TH103, TH104, TH246, TH267, 119, 555, 678, 681
 Erez, B., T5
 Erickson, G. E., 219, 306, 729, 734, 790, 798, 802
 Ericsson, S., 759
 Ernst, C. W., 413
 Escobar-Ramirez, M. C., W78
 Esquivel-Vera, M., T59
 Esser, N. M., T85, TH237
 Estell, R. E., W93, W94
 Estienne, M. J., TH186, 353
 Estrada, A., W240, TH166
 Estrada S, G., W58, W59
 Estrada-Angulo, A., TH283
 Etherton, T., 274, 398
 Etherton, T. D., T189
 Etienne, M., TH168
 Etter, S., W192
 Euclides, V. P. B., TH46
 Eugène, M., T208, T209, T210
 Evans, A. C. O., W156
 Evans, E., 329
 Evans, H. L., T117, TH228
 Evans, J. P., W71, TH20
 Everard, C. D., T56
 Eversole, D. E., 502, 504
 Everts, R. E., T8, T178, TH104, 681, 683, 819
- ## F
- Fachinello, M. R., TH106
 Faciola, A. P., T221
 Fadel, J. G., W173
 Faga, M., 241
 Fagan, C. C., T56
 Fahey, Jr., G., 175
 Fahey, Jr., G. C., W64
 Fajersson, P., TH101
 Faleiro, G., 756
 Fan, B., W300
 Fan, M. Z., W234, 662
 Fan, Y. C., T132
 Fandiño, I., W215
 Fandiño, J. I., 740
 Farhangfar, H., T13, T14, T15, T140, W28, W29, TH5, TH248
 Faria, M. H. de, T121
 Farias, R., TH48, TH50
 Farkye, N. Y., 140
 Farmer, C., TH109, TH168, 818
 Fatehi, F., W200, TH217
 Fathi Nasri, M. H., T13, W28, TH248
 Faucitano, L., T104, 242
 Faulkner, D. B., W20, 211, 278
 Fear, J. M., 82
 Fedkiv, O., TH61, TH62
 Fedler, C., T126
 Fekete, Z., W36
 Feldpausch, J. L., 549
 Felix, J. A., W259
 Fellner, V., W128
 Felton, E. E., TH172
 Felton, E. E. D., TH43
 Feng, J., T188, W141
 Feng, Q., T133
 Fenn, T. R., 547
 Feoli, C., 565, 693, 776, 779, 780
 Ferguson, C. E., TH169
 Ferguson, J., TH195
 Ferguson, J. D., 107, 116, 224, 793, 813
 Ferlay, A., T202, 328
 Fernandes, D., TH106
 Fernandes, H. J., T250, T251, W248
 Fernandez, S., W241
 Fernandez-Figares, I., T108, W136
 Fernando, R., 407
 Fernando, R. L., T35, 6, 521
 Ferrari, A., T224
 Ferraudo, A. S., TH47
 Ferraz Filho, P. B., W40
 Ferreira, A. C. D., T277
 Ferreira, E. M., T273, TH278, TH289, TH290, TH291, TH292
 Ferreira, J. F. S., T270
 Ferreira, R. M., W165, TH240
 Ferreira Marques, A., W150
 Ferreira Ribeiro, A., TH231
 Ferrell, C., 725, 795
 Ferrell, C. L., 311, 624, 724, 796
 Ferrer, A., TH208
 Ferret, A., W215, W271, 675, 738, 740, 756
 Ferroni, M., T227
 Feuerbach, C., 241
 Fiedler, S., 163
 Fields, S. D., 721
 Fievez, V., T238
 Fife, T., T86
 Figueiredo, L. A., TH82
 Fink, E., 351
 Fink, L., T159
 Finocchiaro, R., 619
 Fiorentini, G., T118, T243, W251
 Firkins, J. L., 334, 736
 Fisher, A. E., W18, TH40, TH41
 Fitzgerald, A. C., T189
 Fitzgerald, R., 361
 Fix, J. S., W290, W293, 650
 Fleenor, C. J., 434
 Fleet, J. C., 69
 Floeter, A., W243
 Flores, C., 105
 Flores, J. A., 714
 Flores-Mariñelarena, A., W111, W161
 Flowers, W. L., T290, T291
 Foda, M., 26
 Foegeding, E. A., T41, W68, TH19, TH20, 40, 137
 Fogleman, A. D., T289
 Foisnet, A., TH168
 Fokkink, W. B., 337
 Foley, P. A., W206
 Folger, J. K., W156
 Fonken, B. C. J., 337
 Fonseca, M. A., TH218
 Fontecha, J., W83
 Fontenot, J. P., TH43, 464, 465
 Forbes, T. D. A., W24, 74, 317

Forbord, M. J., T68
Ford, J. J., TH170
Ford, L. A., TH58
Ford, S. P., 472, 473, 474
Fördös, A., W33
Formigoni, A., T79, W210, W231
Fornazier, R., TH106
Forni, S., W41, 625
Foroughi, A., 666
Forrest, D. W., W24
Forsberg, N. E., 250
Forster, R. J., 39
Fossa, M. V., W25, W26, W249, W250,
W272, W273, TH227
Fossler, C. P., 484
Foster, J. L., W102, W196, 598
Fowler, A. W., TH117
Fox, D. G., 229, 309, 463
Fox, J. T., T75
France, J., T235, 308, 797
Francesconi, A. H. D., T211
Francis, C., 175
François, O., T167
Frank, J. W., T161, T162, 201, 787
Frantz, N. Z., W62, 421
Fraser, D., 519, 673
Fredeen, A. H., 24
Free, S. V., T60, T61, W23, 623
Freeman, M., TH241
Fregonesi, J., 153
Freitas, J. A., TH247
Freking, B. A., W50
Freyer, G., T32
Fricke, P. M., T228, W142, W191, TH240
Friend, T. H., 85, 318, 752
Friesen, K. G., W61, W62, 174
Frigeri, M., T54
Froetschel, M. A., 330
Fucà, N., 540
Fuentes, M. C., T238, T239
Fuentes-Castro, P. I., 723
Fuentes-Hernandez, V., 723
Fuentetaja, A., T107, W292, 297
Fuhrer, J., W98
Fujishima, Y., W19
Fulford, J. D., W247
Fusaro, I., T79, W231
Fusi, E., 810
Fustini, M., W209, W210
Fyock, T., T28, 482

G

Gabriel, S. R., 294
Gadberry, M. S., T64, 391
Gado, H. M., 745
Gagliostro, G. A., T202, T213, T214, W197,
328
Gagnon, N., T219, T220
Gahan, D. A., T150, W120
Gaines, A. M., 774
Galante, F., 810
Galassi, G., T82
Galetti, S., TH7

Gallegos-Acevedo, M. A., W110
Galligan, D. T., 116
Gallo, L., 530
Galmozzi, A., T227
Galton, D. M., T101
Galyean, M. L., TH226, 459, 608, 789
Gamble, B., TH42
Gandy, D. M., TH169
Ganjam, V. K., 1
Ganner, A., T159, 370
García, A., W96
Garcia, A. D., 79
Garcia, F., W119
Garcia, M. A., 658
Garcia, M. D., T186, W54
Garcia, N., W174
Garcia, R., W191, W235
Garcia-Flores, E. O., W230, W255
Garcia-Galindo, H. S., T59
Garcia-Gonzalez, R., TH266
Garcia-Peniche, T. B., 764
Garciaarena, A. D., W268
Garciaarena, D., T202
Garciaarena, D. A., T213, T214, W197, 328
Garcí-Nevarez, H., W110
Gardner, I. A., 482
Garey, S. M., 85
Garner, J., 387
Garner, J. P., 379, 381, 382
Garrett, J. G., TH270
Garrick, D., 5
Garrick, D. J., 629
Garverick, H. A., W143
Garvey, J. R., TH2
Garzella, G., T54
Gasa, J., T141, W119, W281, W282, TH152,
205, 675
Gaskin, J. M., 159
Gaskins, C., T28
Gaspa, G., 617
Gastaldello, Jr., A. L., TH288, TH293
Gath, V., 741
Gatnau, R., W133
Gatti, P., T202
Gaughan, J. B., 753
Gauthier, H. M., W205
Gaxiola, C. S. M., W58, W59
Gaxiola, M. J., W58, W59
Gaygadzhiiev, Z., 514
Gazzaneo, M. C., 279
Geary, T. W., W170
Gehman, A. M., 233, 579, 582, 590
Gelaye, S., TH277
Gen, M. M., TH158
Geng, M. M., TH156, TH157, TH160, 781
Gengler, N., TH92, 522, 523, 612, 613, 614,
621
Gentés, M.-C., 516
Gentil, R. S., T273, TH278, TH288, TH289,
TH290, TH291, TH292, TH293
Geor, R. J., 442
George, J., TH111
George, L. A., 473
Geraci, J. I., W268
Geraert, P. A., TH269
Gerard, P. D., T43

Gerdes, R., W66
Gerrits, W. J. J., 203, 337
Getachew, G., W185
Getz, W., 759
Getz, W. R., TH277
Ghilichkhan, M., T190
Ghorbani, G. R., T201, 91, 584
Ghoshal, K., 162
Gianola, D., T35, 408, 530, 625
Gibb, D., 728
Gibson, M. L., T266, 214, 233, 582, 804
Giesy, R., T67
Gigante, M., TH31
Giger-Reverdin, S., 812
Giguère, A., TH119, 200
Gilani, S., TH109
Gilaverte, S., TH290
Gill, B., TH88, TH89, TH90
Gill, R. J., 458
Gill, W. W., W18
Gilliam, J. N., 393
Gilliland, S. E., W83
Giordano, J. O., W158
Giovanetti, V., 384
Giovanni, G., W174
Gipson, T. A., T274, T282, 345, 347
Girard, C. L., TH235, TH239, TH244
Girardi, M., TH106
Glaze, B., W163
Glennon, H. M., T284
Glimp, H., T63
Glimp, H. A., 230
Glover, K., 24
Goad, C. L., 393
Godbee, R. G., 52, 155, 779, 780
Goddard, M., 260
Goddard, M. E., 409
Godden, S., T10
Godden, S. M., 248
Godfrey, R. W., 320
Godio, L., T286
Godsey, C. M., 729
Goesser, J. P., W95, TH53, TH54, TH55,
TH56
Goetsch, A. L., T269, T274, T282, 345
Gokavi, S., TH26
Goksu, S., W212
Golden, B. L., W89
Goldhamer, D. J., 122
Goldhawk, C., W193
Golding, M., 646
Goll, D. E., 557
Golombeski, G., TH188, TH189, TH190,
TH191, TH192, TH193, TH194
Gomes, H. F. B., W15, W16
Gomes, R. C., T119, TH214
Gomez, R. A., 461
Gomez, R. R., W275
Gómez de Segura, A., W281, W282
Gomez-Raya, L., T63, 372, 411, 536
Gondo, A., W40, W46
Gonyou, H., T104, 242
Gonzaga Neto, S., T276
González, F., W96
González, I. J., TH101
Gonzalez, L., W271, 738

- González, L. A., 756
 Gonzalez, R. N., 249
 González-Córdova, A. F., W79
 González-García, E., TH14, TH215
 Gonzalez-Muñoz, S. S., T241, W244
 Gonzalez-Valero, L., T108, W136
 Goodband, R. D., T128, W132, TH124,
 TH132, TH145, 158, 195, 562, 697, 775,
 777, 778, 786
 Goodell, G., 604
 Gooden, M. C., T271
 Goodling, R. C., TH196
 Goodman, M. S., T275
 Goodson, J., 657
 Gooraninejad, S., W151
 Gorvanahally, M. P., 714
 Gourley, G., 708
 Govindasamy-Lucey, S., 42, 538
 Gozho, G. N., T200, T226, W100
 Graeff, A., TH88, TH89
 Gragson, D., W87
 Gramm, B. R., T136, T158
 Grant, R. J., W205, TH4, 343, 583
 Grant, W. E., T84
 Grasso, L., T54
 Graugnard, D. E., TH114, 278, 606, 609, 683
 Graves, A. K., 709
 Graves, T. K., 177
 Gray, A. W., 655, 656
 Gray, J. T., 380
 Green, H. B., W223
 Green, R. D., 400, 627
 Green, S., W56
 Greene, E. A., 430
 Greene, W. A., W159
 Greenwood, S., 76
 Gregorini, P., 435
 Gressley, T. F., T7, 160
 Greter, A. M., W201
 Griffin, D. B., 458
 Griffiths, M. W., 264
 Grigera, J., 486
 Grigsby, K. N., 53
 Grilli, E., T137, T155
 Grinstead, G., T166
 Griswold, K., TH202, 89
 Grossman-Garber, D., 501
 Grosz, M. D., 412
 Grott, M. W., TH204
 Grubb, P. T., 321
 Grubbs, J. K., W23, 623
 Grummer, R. R., T262, W218, TH234,
 TH244
 Gu, W. T., W140, TH155, TH157, TH158,
 781
 Guan, L. L., 55, 788
 Guardiano, C., 813
 Guay, F., TH119
 Gubbiotti, A., T223
 Guemez, H. R., TH147, TH148
 Guenther, J. N., W158
 Guerini, M., T4
 Guerra-Medina, E. C., W230, W255
 Gugle, T. L., 565, 693, 776
 Guimarães, G., TH247
 Guinee, T. P., 644
 Gül, S., W67
 Gulay, M. S., T174, T179, T180, W169,
 TH116, 456
 Guler, Z., W67, 517
 Gunn, D., W163
 Gunn, P. J., TH282
 Gunter, S., TH38, 95, 96
 Gunter, S. A., 491
 Guo, J., W141, TH153
 Guo, M., W70, TH26
 Guo, T. J., TH206
 Guo, Y. Q., 342
 Gurakan, G. C., W80
 Gurung, N., T278
 Gurung, N. K., T275
 Gutierrez, B. T., T293
 Gutierrez, K. A., T173
 Gutiérrez-Méndez, N., W79
 Gutiérrez-Ornelas, E., W104, W105, TH294,
 440
 Gutiérrez-Piñ, F. J., W110
 Gwazdauskas, F. C., T188, TH178, TH180
- ## H
- Ha, H. J., TH21
 Haan, M., TH35, TH36, 436, 437
 Habier, D., 521
 Hackbart, K. S., TH240
 Hackmann, T., 57
 Hada, M., W19
 Haddock, K. L., W12
 Haden, J. K., 718
 Hadlich, J. C., W25, W26
 Hadsell, D. L., TH111
 Hahn, J. D., TH124
 Haines, R. M., 110
 Halas, V., 704
 Halbach, T. J., 766
 Hale, D. S., 458
 Hales, K. E., TH226, 789
 Hall, K. E., 603
 Hall, K. G., 765
 Hallada, C. M., T87, T91
 Hallford, D. M., T186, W93, W94
 Hamernik, D., 432
 Hamlin-Andrus, C., 179
 Hammer, C. J., TH97, TH98, 286, 287
 Hammon, H. M., T216, T217, W243
 Han, H., W21, W242
 Han, X., W70
 Han, Y., 694
 Han, Y. K., T152, TH123,
 Hancock, J. D., T144, T145, T151, W137,
 TH122, TH143, 565, 693, 776, 779, 780
 Hand, K., 9, 12
 Hanigan, M. D., T66, TH68, TH263, 60
 Hansen, G. R., W37, W38, W39
 Hansen, L. B., 762, 763
 Hansen, P. J., TH162, TH177, TH182,
 TH183, 82, 84, 302
 Hansen, S. A., T161, T162
 Hansen, S. L., 67, 99
 Hardin, L., T80
 Harmon, B. G., 773
 Harmon, D. L., W61, W62, W253, TH75,
 TH79, TH266, 174, 420, 665, 730
 Harmon, J., 322
 Harmon, S. E., TH84
 Harner, J. P., 80, 81
 Harp, R., T280
 Harper, A. F., TH186, 353
 Harper, J., 48
 Harper, W. J., T53, T57, TH22, TH30
 Harrell, R. J., TH131, 193, 469, 699, 706,
 708
 Harris, P., 807
 Harrison, G. A., TH259, TH260, TH261,
 TH266
 Harrison, J., 106
 Harrison, V., W82
 Hart, K., T194, W227
 Hart, S. P., T269, T270, 345
 Hartnell, G. F., TH16
 Hartzell, J. A., TH254
 Harvatine, K. J., 680, 682
 Harvey, E. L., TH34
 Hassan, A., 26
 Hassan, A. N., 21, 41, 47
 Hassan, M., 745
 Hathaway, M. R., TH76, TH77, TH78
 Haung, Y., T143, W137
 Hausman, G. J., T187
 Hayashi, M., W264
 Hayen, J., 457
 Hayen, M. J., TH116, 456
 Hayes, B., 260
 Hayes, B. J., 409
 Hayes, S., TH99, TH188, TH189, TH194
 Hazel, A. R., 762, 763
 He, M., T203
 He, M. L., W217, W254
 He, Q. H., W288
 He, W., T35
 He, Y. X., W280
 Head, H. H., TH116, 456
 Heck, J. M. L., 611, 615
 Heguy, J. M., T263
 Heidenreich, J. M., 338, 339, 344
 Heimbeck, W. H., TH255
 Heinrichs, A. J., T100, T236, T264, W1, W2,
 W3, W209, W210, TH256, 118, 217, 653
 Heins, B. J., 762, 763
 Helmes, E. B., TH69
 Henderson, L., W14
 Hendricks, K. E. M., TH177
 Hengemuehle, S., W177
 Heng-Jin, W., 103
 Hennessy, A. A., TH230
 Henning, P. H., 338, 339
 Henning, W. R., 458, 463
 Henrique, D S, TH81
 Heravi Moussavi, A., T181, T204, T225,
 T244, W148, W257, TH211, TH220,
 TH221, TH272
 Herd, R. M., 770
 Herfel, T., W130
 Herman-Lara, E., T59
 Hermes, R. G., W281, W282, TH152, 205
 Hermes, S., 536

- Hernandez, C., W247, TH223
Hernández, J., W96
Hernandez, K., W247
Hernandez, L., 451
Hernandez, L. L., 88
Hernandez, M., T138
Hernandez, P., TH276
Hernández-Aguilar, J. A., W104, W105
Hernández-Gómez, C., W111, W113
Hernot, D., 175
Hernot, D. C., W64
Heron, V. S., 794
Herrera, R. S., 440
Herrera-Torres, E., W106, TH51
Herrero, M., 658
Herring, A. D., W27
Herring, W. O., 35, 532, 535
Herringshaw, S., TH28
Herrmann-Hoesing, L. M., 348
Hershey, M. R., W164
Hersom, M., 439
Hess, B. W., 228, 332, 491
Hess, H. D., TH242
Hess, T., 597
Hesselbrock, K., TH150
Heyler, K. S., TH254
Hibbard, G., W61
Hickman, H. J., T289
Hicks, C. L., W76
Hicks, M. S., 487
Hidaka, S., W19
Higginbotham, G. E., W6
Higgins, J. J., T123, T124, W270, 338, 339, 344
Higginson, J., 380
High, J., TH202, 89
Highstreet, A., TH270
Hill, A., W74, 514
Hill, G. M., 66, 195, 314, 508, 545
Hill, G. M., 600, 800
Hill, G. W., 319
Hill, H., 241
Hill, S. R., 684
Hill, T. M., 216, 221
Hill, W. J., W274
Hines, S., T86
Hinson, R. B., 711, 774
Hintz, H., 441
Hippen, A. R., 56, 331, 585
Hittle, M., W23
Hittle, M. S., 623
Ho, C. S., 411
Ho, M. K., W174
Hoagland, T. A., W199
Hobin, M. R., T200
Hodate, K., W264
Hoffman, P., TH197
Hoffman, P. C., T85, TH53, TH54, TH55, TH56, TH237, 601, 766
Hofherr, M. W., T93, T95
Hofstetter, U., W7
Hogberg, M. G., 165
Hoge, M. D., 531
Hogeveen, H., 655, 656
Hohenboken, W., 622
Holcombe, S. J., 288, 289
Holden, L., 315
Holick, M. F., 179
Holl, J. W., W51
Holland, B. P., W4, 390, 393
Holligan, S., W234
Holliman, J. L., TH45
Hollmann, M., 327
Holmer, S. F., 295
Holt, J. P., 709
Holt, M. G., T168
Holt, R., T135
Holt, W., 359
Holtrop, G., TH250
Holub, G. A., W27, 132
Homm, J. W., W20, 218
Honeyman, M., 292, 322, 754
Hong, E. K., T47
Hong, J. W., T148
Hong, X., 163
Hong, Y. K., T157
Hooda, S., 710
Hopkins, B. A., W222
Horigan, K. C., 685
Horn, G. W., 272
Horn, T. M., T66
Horne, D. S., 515
Horne, W. J., W27
Horseman, N., 451
Horvath, M. B., T252, 336
Hosseini, A., 71
Hosseini, F., T181
Hosseini, M. E., W29
Hou, Y. Q., TH160
House, B., 315
Hovey, R. C., 685
Hoving, E., T28
Hovingh, E., 247
Howard, A. N., 58
Howard, J., 238
Hristov, A. N., T221, 307, 341, 592
Hu, Q., TH130
Hu, W., T92, T93, T95, W204, W226
Hu, Z. Y., T205, T206
Huang, C., 17, 18
Huang, M. C., W301
Huang, R., W123, W124, TH154
Huang, R. L., W140, W288, TH130, TH155, TH156, TH159, TH160
Huang, T. H., W301
Huang, Y., T144, T145, T146, T151, T152, T153, T154, TH123, TH143
Hubbard, K. J., 233
Hubbard, S. M., T18
Hubbell, III, D., 597
Huber, K., W243
Huderson, B. P., TH108
Hueston, W. D., 268
Huff-Lonergan, E., T126, 290, 293, 558, 689, 690
Huffman, R. D., 692
Hughes, A., 439
Huhtanen, P., T265, 592, 816
Huisden, C. M., 159
Hulbert, L. E., 374, 577
Hulbert, L. H., 578
Hulland, C., T74
Hume, M., T138
Hume, M. E., W247, TH223
Humphreys, A., 694
Hung, I. F., T168
Hunt, A. S., W65
Hunt, M. C., T123, T124
Huo, X. K., TH206
Hurley, W. L., TH114, 683, 819
Husband, T. P., 501
Hussein, H., T78
Huston, C., 389
Hutchens, T., W239
Hutcheson, J. P., 460
Hutchison, C. F., 58
Hutchison, J. L., T17, T20
Hutjens, M., 429
Hviid, M. S., 560
Hwang, I. W., T147
Hwang, O. H., TH135
Hymoeller, L., TH238
Hyun, Y., T146, T147, T151
- I**
- Iager, M. E., T5
Ibáñez-Escriche, N., W52
Ibrahim, S., W69
Ibrahim, S. A., W82, TH23
Ilieji, K. E., 657
Impoco, G., T55
Ing, N. H., T173
Ingham, S. C., 45
Inskeep, K., 714
Invernizzi, G., T227
Inyang, U., TH48, TH50
Ipharragerre, I., T134
Ireland, J. J., W156
Irvine, L., TH241
Ishler, V. A., T196, TH254
Israelson, C., T70
Issa, S., 565, 776
Ivan-Dinh, S. K., TH252
Iwaasa, A. D., T208, T209, T210
Iwazaki, M., 205
- J**
- Jacela, J. Y., TH145, 158, 562
Jackson, K. A., 236
Jacob, M. E., T75
Jacobi, S., W130
Jaeger, J. R., T123, W44, W270, 392
Jaeggi, J., 538
Jaguelin, Y., 701
Jahani-Azizabadi, H., T233, W225
Jahani-Azizabadi, H. H., TH209
Jahani-Moghadam, M., TH251
Jalukar, S., 371
James, R. E., T66, 54, 684

- Jamison, W., 258
 Jamrozik, J., 9, 12
 Jang, H. D., T144, T147, T148, T152, TH122
 Januszkiewicz, E. R., TH37, 438
 Jaramillo, D. P., 821
 Jardina, D. T. G., TH185
 Jarrett, J., TH127, 199, 712
 Jarto, I., TH33, 512
 Jaster, E., 128
 Javed, A., 731
 Jayarao, B. M., T100, W3, 653
 Jedrzejewski, E., TH91
 Jenkins, K. H., 732
 Jenkins, T., W182
 Jenkins, T. C., T249
 Jenkins, T. G., 624
 Jennings, J., 597
 Jennings, J. A., T64
 Jennings, J. S., 668
 Jensen, S. K., T193, TH238, 109
 Jeong, Y. K., T148
 Jergenson, C., TH187
 Jesse, G. W., 503
 Jeved, A., 98
 Jeyapalan, A. S., 279
 Jezierny, D., 209
 Ji, S. Y., TH121
 Jia, L., TH233
 Jia, X. H., T130, W129, TH120
 Jiang, H., T188, 502, 686
 Jiang, J., 482
 Jiménez-Castro, J., W110
 Jimenez-Flores, R., W86, W87, W88, TH31, 238, 641
 Jimenez-Krassel, F., W156
 Jiménez-Maroto, L. A., T39
 Jin, C., TH195
 Jin, M., T160
 Jin, Z., TH153
 Jing, L. Z., T132, T133, W48, W134
 Johnson, A., 241, 322, 359, 361, 534, 754
 Johnson, A. K., TH2, 240, 379, 381
 Johnson, B. J., TH73, TH76, TH77, TH78, 459, 460
 Johnson, B. M., 758
 Johnson, C. L., W168
 Johnson, C. R., W192
 Johnson, C. S., 50
 Johnson, D. D., W37, W38, W39, 458
 Johnson, D. G., T68, W175, W180, TH187, 762, 763
 Johnson, H. A., W173
 Johnson, K., W261, 341, 520
 Johnson, K. A., 304
 Johnson, M., 141, 538
 Johnson, M. E., 42
 Johnson, P. J., 1
 Johnson, R., 418
 Johnson, R. C., 62
 Johnson, R. K., 533
 Johnson, R. W., T163, 368
 Johnson, S. E., 470
 Johnson, T. R., 657
 Johnson, Z. B., T161, T162, 201, 787
 Johnston, S. L., T162
 Jokela, W. E., T77
 Jones, B., 675
 Jones, C., 391
 Jones, D., 38
 Jones, L., 226
 Jordan, K. M., 497
 Jorge, A. M., W15, W16
 Jørgensen, L., T155
 Ju, W. S., T157, W121, W122
 Juarez, M., W83
 Juárez-Reyes, A., TH51
 Juárez-Reyes, A. S., W104, W105, W106, W238, W258, 440, 495
 Julka, A., W286
 Jung, H. G., 182
 Jung, H. J., TH121, TH142
 Jung, S., TH181
 Junghans, P., W243, TH249
 Justolin, P. L. T., TH185
- ## K
- Kachman, S. D., 7, 533
 Kadegowda, A. K. G., T102, TH103, TH104, 119, 555, 678, 681
 Kahl, S., W9
 Kai, P., W128
 Kailasapathy, K., 426
 Kalbe, C., TH63, T176
 Kale, M., T174
 Kallenbach, R. L., 97
 Kalscheur, K. F., 21, 47, 56, 331, 585
 Kamalakar, R. B., TH133, TH134
 Kamanga-Sollo, E., TH76, TH78
 Kandasamy, S., W12
 Kang, D.-K., T139
 Kang, P., TH130
 Kang, T., 159, 598
 Kang, T. W., W196
 Kannan, G., T285
 Karcher, E. L., 50, 154
 Karges, K., T266, 233, 582
 Karges, K. K., 214, 804
 Karimi Torshizi, M. A., T140
 Karns, J., T28
 Karreman, H., TH202, 89
 Karren, B. J., TH97, TH98, 286, 287
 Karriker, L., 359, 534
 Kaskous, S., TH113
 Kattesh, H. G., 245
 Kawachi, H., 63
 Kawai, Y., 22
 Kawashima, C., T185
 Kay, J., 73, 454
 Kazama, R., T219, T220
 Keane, G. P., T247
 Kebe, S., T283
 Kebreab, E., T235, 304, 308, 797
 Keel, T. L., 177
 Keeling, L. J., 676
 Keeton, J. T., T127
 Kegley, E. B., T64, 391
 Keisler, D. H., T186, 237, 668
 Keli, A., T243
 Kelley, K. W., T163, 368
 Kelly, A., 643
 Kelly, A. L., 644
 Kelly, D., 785
 Kelly, D. T., 312
 Kelly, M. J., 404, 410
 Kelly, P. M., 644
 Kelton, D., W14, 386
 Kelzer, J. M., 582
 Kenny, D. A., T247, W206, W269, TH230
 Kensinger, R. S., 235, 435, 552
 Kentish, S., 646
 Kerley, M., TH225
 Kerley, M. S., T117, T177, T237, TH228, 97
 Kerr, B., 292
 Kerr, B. J., TH128, 784
 Kerr, D. E., W12, W13
 Kerth, C. R., TH42
 Kertz, A., 602
 Keskin, M., W67
 Ketchen, D. J., 463
 Ketring, R. C., 320
 Ketterings, Q., W101
 Khadem, A., T192
 Khalilvandi, H., T242, TH286, TH287
 Khatib, H., T12, 365
 Khazanehei, H. R., T242
 Khorvash, M., 91
 Kiarie, E., 695
 Kido, K., W264
 Kiess, A., T73
 Killefer, J., 294, 295
 Killion, A., T80
 Kim, B. G., T136, T168
 Kim, B. W., W220, W229, TH153
 Kim, D. H., T157
 Kim, D. W., TH135
 Kim, H. J., T143, T145, T146, T151, T152, T153, T154, W137, TH123
 Kim, H. S., T146, T147, T151
 Kim, H. Y., W174
 Kim, I. C., T143, TH121
 Kim, I. H., T142, T143, T144, T145, T146, T147, T148, T151, T152, T153, T154, W137, TH121, TH122, TH123, TH140, TH141, TH142, TH143, TH144
 Kim, J. D., T143, T148, TH140, TH141, TH142, TH143
 Kim, J. G., W284, W285
 Kim, J. P., W283, W284, W285
 Kim, K. G., W283
 Kim, K. H., W283, W284, W285, TH58
 Kim, M. J., T139
 Kim, N. S., W42
 Kim, S. C., W196, 598
 Kim, S.-D., W47
 Kim, S. H., T48, W72, W73, W283, W284, W285
 Kim, S. W., 196, 197, 202, 369, 705
 Kim, S. Y., T47
 Kim, W. T., W137
 Kim, Y. H., T127, TH121
 Kim, Y. Y., T157, W121, W122
 Kincaid, R., W261, 106

- Kindstedt, P. S., T51
 King, R. H., 791, 792
 Kiran, D., T226
 Kirchoff, V., 411
 Kirkden, R. D., 379
 Kirkpatrick, D., 651
 Kirovski, D., 60
 Kistemaker, G., 16
 Kitazawa, H., 22, 610
 Kitts, S. E., W253
 Kivipelto, J., 447, 448
 Klaenhammer, T. R., 427
 Klasing, K. C., T135, TH16
 Klein, C. M., T249
 Kleinschmit, D., 38
 Kleinschmit, D. H., T98
 Klimitsch, A., T89, T94
 Klingerman, C. M., T92, W204
 Klopfenstein, T. J., 219, 306, 729, 790, 798, 802
 Klopfenstein, T. K., 734
 Klotz, J. L., 2, 3
 Klusmeyer, T. D., T189
 Knapp, J. R., 334
 Knight, C. D., 193, 706
 Knight, J. W., 497, 567
 Knol, E. F., 355, 529
 Knott, S. A., 670
 Knowlton, K. F., T66, TH263, 234, 684
 Knox, R., 570
 Knox, R. V., 571
 Kocaoglu-Vurma, N., TH28
 Kocaoglu-Vurma, N. A., T53, TH22, TH30
 Koch, K. B., T228
 Koehler, D., T166
 Koehler, R., T294
 Koenig, K. M., TH243
 Koers, W. C., W246
 Kohn, K., 696
 Kohn, R. A., TH246, TH252
 Kohram, H., W151, W152
 Kojima, C. J., 245
 Koknaroglu, H., TH197
 Koks, P. D., 611
 Kolbehdari, D., 410
 Kolver, E., 454
 Komlósi, I., W36
 Kong, X. F., W125, W140, W287, W288, W289, TH130, TH155, TH159
 Kononoff, P. J., T65, T266, 233, 579, 582, 590
 Koohmaraie, M., W54, 311
 Koonawootrittriron, S., T23, W34, W35
 Koons, A. J., 112
 Koontz, A. F., W253
 Kopral, C. A., 87, 319, 481, 483
 Korn, N., TH65, 660
 Korneli, C., 568
 Korthaus, F. F., W253, 730
 Koser, S. L., TH66, TH67
 Kosiorowska, A., T193
 Kothari, K., 644
 Kouakou, B., T285
 Koutsos, E. A., 635
 Kovar, J., TH36
 Kowsar, R., 91
 Krall, J. M., 332
 Krause, D. O., 695, 772
 Krause, K. M., 478
 Krawczel, P. D., W205, TH4, 583
 Krebs, N., TH2
 Krehbiel, C. R., W4, W147, 390, 393, 489
 Kreider, D., 597
 Kreikemeier, K. K., 730
 Kremer, P. V., 352
 Kress, D. D., 628
 Kreuzer, M., 188
 Kriese-Anderson, L. A., T60, T61, T62, W23, 623
 Kris-Etherton, P. M., T189
 Kristensen, N. B., T193, T259, T260, T261, TH257
 Kristula, M. A., 251
 Kroismayr, A., 356
 Kron, M. B., 232
 Kronberg, S. L., 325
 Krueger, N., T76
 Krueger, N. A., T256, W275
 Krueger, W. K., W275
 Kuchida, K., W19
 Kuhla, S., W243
 Kuhlman, G., 419
 Kühn, I., T137, W114, W115
 Kuhn, M. T., T18, T20, T21
 Kumar, H. A., 541
 Kung, Jr., L., T91, T92, T93, T95, W204, W226
 Kurtyka, L. K., TH16
 Kutay, H., 162
 Kutz, R., W213
 Kutzler, L. W., 295
 Kwak, H. S., T47, T48, W72, W73, TH21
 Kwoczak, R., T49
 Kwon, I. K., T129
- L**
- La O-Leon, O., W112
 La Terra, F., 187, 326, 815
 La Terra, S., 326, 539, 540
 Laansma, D., TH176
 Laborde, J. M., 58
 Lacasse, P., 452, 455
 Lacetera, N., T4, W8, TH164, 246
 Lacey, J. L., 213
 Lachica, M., T108
 Lachmann, M., TH127, 199, 712
 Lacy, M. P., 166
 Laforest, J.-P., T104
 Lago, A., T10
 LaGrange, W. S., 19
 Laird, S., T3, 573
 Lake, S. L., W263, TH282, 434, 491
 Lalman, D. L., 589
 Lamb, G. C., W166, W167, 376
 Lamberson, W. R., W40
 Lambert, B. D., T280, T295, W103
 Lambert, G. P., 594
 Lametsch, R., 290, 560
 Lammers, P., 292, 322, 754
 Lampe, J., 534, 708
 Lamprecht, E. D., TH95, 446
 Lana, R. P., TH247
 Lancaster, P. A., W24, W276, 212
 Landrito, E., T34
 Lane, C., 432
 Lane, Jr., C. D., W18, TH41,
 Langhof, A. K., T216, T217
 Langoni, H., T9
 Lanka, E., 38
 Lanna, D. P. D., W256, TH253, 215
 LaNoce, A. J., TH163
 Lantinga, E. A., 189
 Lapierre, H., T229, TH239, TH249, TH250, 185, 186
 Lardy, G., 432
 Lardy, G. P., T228, 726
 Lares, S. F., 721
 Larraín, R. E., 462
 Larry, L. K., 239
 Larsen, M., T259, T260, TH257
 Larson, C. K., 100
 Larson, R., TH188, TH189, TH190, TH191, TH192, TH193, TH194
 Larson, R. L., 392
 Lascano, G. J., T264, TH256
 Latorre, M. A., T106, T114, TH138, 354
 Latour, M., TH150, 505, 785
 Latshaw, J. D., T36, TH59
 Latshaw, M., W13
 Laubach, M. S., TH117
 Laubscher, A., W88
 Lauderdale, J. W., 167, 713
 Laudert, S. B., 734, 735
 Laurenz, J. C., T173, 152
 Lauridsen, C., 468
 Laven, R., 220, 485
 Lawler, R. C., T275
 Lawlor, T. J., 17, 18
 Lawrence, B. V., 193, 699, 706, 708
 Lawrence, J., 151
 Lawrence, L. M., TH9, TH11, TH99
 Lawrence, T. E., 458
 Lay, D., T3
 Lay, Jr., D. C., TH1, 381
 Layman, L., 359
 Lázaro, R., T107, W118, TH138, 206, 297
 Lazcano, R., TH210
 Lazenby, D., 9
 Le Dividich, J., TH168
 le Treut, Y., W294
 Lean, I. J., 225, 742, 791, 792
 Leão, M. I., W235, TH247
 LeBlanc, S. J., 248, 386, 716
 Ledoux, D., W213
 Lee, A. E., W103
 Lee, B. S., TH135
 Lee, C. Y., T142, T154, W137
 Lee, J., T285
 Lee, J. H., W121, TH122, TH135, TH140, TH141
 Lee, J. J., W42
 Lee, K., T36, TH59

- Lee, M. S., T112, T113
 Lee, S., T48
 Lee, S. H., T129
 Lee, S. J., TH121
 Leeds, T. D., 348, 349, 350
 LeFloch, N., 200
 Legan, B., 785
 Lehrer, H., TH179
 Lei, X. G., TH129, 198, 303, 696
 Leibetseder, J., 356
 Leibovich, J., TH226
 Leigh, A. O., W49, W194
 Leitman, N. R., 652, 717, 718, 722
 Lema, M., T283
 Leme, P. R., T119, W256, TH214, TH280, TH281
 Lemenager, R., W263
 Lemenager, R. P., TH282, 434
 LeMieux, F. M., TH169
 Lemley, C. O., 478
 Lemor, A., 71, 72
 Lemus-Flores, C., W57
 Lengi, A. J., W55, 664
 Lengyel, Z., W36
 Lenin, J., W252
 Lenz, R. W., TH173
 Leon, F., W259
 Leonardi, C., 58
 Lescun, T. B., TH93
 Leslie, K., T10, W14, 387
 Leslie, K. E., 248, 386, 716
 Lessard, P., 694
 Lethbridge, L. A., 485
 Leuer, R. F., W1, W2, W3
 Leung, M. C. K., W60
 Leupp, J. L., 726
 Leury, B. J., 670, 671, 744
 Levario, M. A., TH275
 Lévesque-Sergerie, J.-P., T33
 Levine, M. J., TH16
 Lewin, H. A., T8, T178, TH104, 528, 681, 819
 Lewis, A. J., TH16
 Lewis, A. W., 316, 317, 477
 Lewis, G. S., 349, 350
 Lewis, N., 242
 Lewis, R. M., 170
 Li, C. Y., 291, 358
 Li, D., T205, T206
 Li, F. D., TH206
 Li, J., W74
 Li, J. G., TH129, 198
 Li, L., TH263
 Li, Q. Z., 276
 Li, S., W181
 Li, T., W123, W124, TH154
 Li, T. J., W140, TH130, TH156, TH157, TH158, TH159, TH160, 781
 Li, W. T., 342
 Li, Z., 662
 Liang, S., T215, T255, W277, W278, W279, TH219
 Liao, S. F., TH74, TH75, 76, 665, 669
 Licitra, G., T55, 187, 326, 539, 540, 813, 815
 Liesegang, A., TH242
 Liesman, J., TH115, 288, 289, 687
 Liesman, J. S., TH255
 Ligon, J., TH263
 Lim, S., TH59
 Lim, S. J., T139
 Lim, S.-Y., 649
 Lima, F. S., W219
 Lima, G. J. M. M., 194
 Lima, J. C. M., T250, T251
 Lima, J. R., W188
 Lima, L., W189
 Lin, G. Z., W229
 Lin, J. C., W98, TH42, TH45
 Lin, R. S., W301
 Lin, X., W130
 Lindemann, M. D., T168, W117, TH125, 197
 Linford, R. L., 548
 Link, J. E., 66, 508
 Linn, J., TH188, TH189, TH190, TH191, TH192, TH194
 Linn, J. G., 79, 762, 763
 Lippolis, J. D., 605
 Little, D. E., TH145, 56, 562
 Liu, G. L., T2, T29, T130, T171, T172, W48, W90, W134, TH120
 Liu, H. J., W289
 Liu, J. X., 291, 335, 342, 358
 Liu, K. J., 177, 178
 Liu, K. L., T2, T29, T171, T172, T230, T231, T232, T255, W90, W224, W278, W279, W280, TH70, TH219
 Liu, L., T215, T232, T255, W224, W277, W278, W279, TH219
 Liu, S. J., T207, T215, T232, T255, W224, W278, W279, W280, TH219, TH236
 Liu, S. L., W277
 Liu, T. L., W140
 Liu, W.-S., T34
 Liu, X., 649
 Liu, Y., TH129, 198
 Liu, Y.-L., TH155
 Liu, Z., W85, TH130, TH154
 Liu, Z. Q., W125, W140, TH155, TH159
 Lo, L. L., W301
 Lobley, G. E., TH250
 Lobo, R. B., W41, W45
 Lock, A. L., W207, 640
 Lockee, B. B., 170
 Lodge-Ivey, S. L., T252, 336
 Loera-Corral, O., T241, W244
 Loerch, S. C., TH284, TH285
 Loesel, D., T176, TH63
 Loetz, E., T269
 Lohuis, M. M., 173
 Lollivier, V., 455
 Lombard, J. E., 87, 319, 481, 483, 484
 Loneragan, G. H., 747, 748, 749, 750
 Loneran, G. H., 746
 Lonergan, P., W156, TH230
 Lonergan, S., 292, 322, 558, 690, 754
 Lonergan, S. M., T126, 157, 290, 293, 689
 Long, C. R., 316
 Long, F. Y., T133, W129
 Long, H. F., W121, W122
 Long, M. R., 118
 Long, N., 408
 Long, N. M., W146, W147
 Long, T., 532, 535
 Longuski, R. A., 580
 Looper, M., 597
 Looper, M. L., TH12
 Loor, J., T205, T279
 Loor, J. J., T8, T102, T178, T218, TH103, TH104, TH114, 278, 553, 555, 606, 609, 678, 679, 681, 683, 819
 Lopes, F., W208
 Lopes, J. C., T103
 Lopes, N. M., TH262
 Lopes, W. C., TH247
 López, C., T243
 López, D., W96, W97
 Lopez, E. J., TH283
 Lopez, M., 707
 López, V. M., W58, W59
 López-Hernández, A., T39
 Lord, L. E., 120
 Lott, W. M., TH178, TH180
 Lovett, D. K., W206
 Lowe, G. D., TH284, TH285
 Loy, D. D., 147
 Loyd, A. N., 316, 577
 Lu, D. X., T279
 Lu, Z., 179
 Luan, S. Y., TH70
 Lucey, J., 538
 Lucey, J. A., TH33, 42, 139, 512, 515
 Luck, P. J., TH20
 Luckett, A., TH83
 Lucy, M. C., T189
 Luebbe, M. K., 219, 306, 729, 734, 790, 798
 Luense, L., 163
 Luginbuhl, J.-M., T284
 Lukas, J. L., 93, 450
 Lukose, A., 330
 Lum, G., 104
 Luna-Rodriguez, L., W244
 Lund, M. N., 560
 Lundy, III, F. P., 657
 Lunsford, A. K., 351, 669
 Luparia, F., T213, T214, W197, 328
 Lupton, C. J., TH274, 493
 Luqué, L. D., 507
 Lusk, J. L., 259
 Lynch, C. O., TH230
 Lynch, E. M., 156
 Lynch, M. B., T247, W120, 703
 Lyons, J. G., T173
 Lyons, J. K., TH207
 Lyons, M. A., 334
- ## M
- Ma, M., W181
 Ma, Y., 472
 Ma, Y. L., W117, TH125
 Mabasa, L., TH117
 Macchione, M. M., TH18
 Macciotta, N. P. P., 117, 617, 618

MacDonald, J. C., 148, 732
 Mach, N., TH232
 Machacek, K. J., T65
 Machado, C. H. C., W46
 Machen, R. V., 458
 Mackowiak, C., T81
 MacLeod, J. N., 30
 MacNeil, M. D., 412
 Madden, R., 393
 Maddock, R. J., 458
 Mader, T., TH197
 Mader, T. L., 753, 755
 Maduko, C. O., 513
 Magalhães, M. A., 438
 Maggioni, L., T253
 Magistrelli, D., 823
 Magliaro, A. L., 235
 Magnabosco, C. U., W45
 Mahan, D. C., 197, 294, 466
 Mahjoubi, E., T190, W195
 Maianti, M. G., T223
 Maijón, M., TH8
 Majdeddin, M., W126
 Maldonado, F., TH81
 Malhado, C. H. M., W40
 Mallory, D., TH225
 Mallory, D. A., 652, 717, 718, 722
 Maltecca, C., 766
 Mancio, A. B., TH46
 Mandell, I. B., TH229
 Mandonet, N., TH14
 Manenti, M., 326, 540
 Mani, O., TH105
 Manini, R., T155
 Mann, G. E., 476
 Manteca, X., 675, 756
 Manuel, L., W136
 Manzanilla, E., W119
 Manzanilla, E. G., T141
 Mapes, J. M., 508, 700
 Maqbool, N., 807
 Marchant-Forde, J. N., 381, 382
 Marchello, J. A., 557
 Marcondes, M. I., T120, TH218
 Margerison, J. K., 220, 485
 Mari, L. J., T91
 Mariani, T. M., T122, W26, W108, W109,
 W249, W250, W265, W272, W273,
 TH222, TH227
 Maria-Rosa, M.-L., W127
 Maribo, H., T155
 Marino, C. T., W272, W273
 Marnet, P.-G., 452
 Maroney, M. J., W158
 Marques, C. A. T., T276
 Marques, L. F. A., W43
 Márquez, G. C., 412
 Marquezini, G., W166
 Marr, L. C., TH263
 Marshall, C. E., W164, TH173, TH174,
 TH176, 603
 Marshall, R. T., 509
 Marston, T., 432
 Marston, T. T., T123, T124
 Martel, C. A., W191
 Marti, S., TH213
 Martin, J. L., 722
 Martin, L., 176
 Martin, L. C., 362, 363
 Martin, S. K., 174
 Martineau, R., T229
 Martínez, A., W107
 Martínez, A. C., T83, T96
 Martínez, M., T196
 Martínez, M. E., T248, TH212
 Martínez-Bustos, F., TH25
 Martínez-González, J. C., T84
 Martínez-Ramírez, H. R., W135
 Martínez-Sánchez, C. E., T59
 Martini, S., 49
 Martin-Orúe, S., T141
 Martins, C. L., T122, W25, W26, W249,
 W250, W265, W272, W273, TH222,
 TH227
 Martin-Tereso, J., W215
 Masoero, F., TH245
 Mason, G., 12
 Masuda, Y., T24
 Mateo, M. J., T56
 Mateos, G. G., T107, W118, W292, TH138,
 206, 297
 Matheney, K. J., TH205
 Mathew, B., 736
 Mathias, A. E., W25, W26
 Mathis, C., 432
 Matis, J. H., 318
 Matsas, D., 759
 Matsuhara, S. A., W25, W26, W249, W250,
 W272, W273, TH227
 Matte, J. J., TH239, 200, 710
 Matthews, J. C., TH74, TH75, TH79, 2, 3,
 76, 78, 665, 669
 Matthews, J. O., 62
 Matthews, N., 361
 Matukumalli, L., W54
 Matukumalli, L. K., 524
 Maulfair, D. D., W209, W210
 Mawson, R., 646
 Maxwell, C. V., T109, T110, T161, T162,
 201, 787
 May, M. L., 789
 Mazza, A., T254
 McAllister, A. J., 761, 765
 McAllister, C. M., 746, 749
 McAllister, T. A., T208, T209, T210, W217,
 728
 McBride, B. W., W234, 76, 78
 McCall, C. A., 547
 McCarter, M., 104
 McCarthy, C. R., W179
 McCarthy, F. D., T294
 McCaskey, T. A., W179
 McCaslin, M., 183, 184
 McClanahan, L., 431
 McCleary, C. R., TH173
 McClements, R., 181
 McCollum, T., 432
 McCollum, III, F. T., 732
 McComb, A., 180
 McCraw, R. L., T290, T291
 McDaniel, T. G., 161
 McDaniel, M. R., 338, 339
 McDonald, J. M., 767
 McDonald, L. R., W276
 McDonnell, E. E., T92, W204
 McDowell, K. J., TH9
 McElhenney, W. H., 444, 547
 McElroy, A. P., 502, 504
 McFadden, J. W., 677
 McFadden, T. B., TH110, 120, 123, 449, 554
 McGee, M., W269, 156, 389
 McGilliard, M. L., TH180, 54, 684
 McGlone, J. J., TH171, 243, 244
 McGrath, M. F., T189
 McGuire, M. A., T257
 McGuirk, S. M., 155
 McKee, S. L., W153
 McKeith, F. K., 294, 295, 461
 McKeown, L. E., 728
 McKernan, H., TH88, TH90
 McKinnon, I. R., 643
 McLeod, K. R., W61, W62, W253, TH75,
 TH79, TH266, 174, 665, 730
 McMahan, W. M., 239
 McMahan, D. J., T38, T46, T58, 49, 540
 McMeniman, J. P., TH226
 McMillin, K. W., 227
 McMurphy, C. P., 589
 McNamara, D. L., 503
 McNamara, J., 126, 280, 281, 422
 McNeill, S., 638
 McSweeney, K., TH175
 Means, W. J., 691
 Mechor, G. D., T195
 Medeiros, A. N., T276, T277
 Meers, S. A., W139
 Meisinger, D. J., 433
 Meiszberg, A. M., TH2
 Mejías, R., 440
 Melchior, D., TH152, 200
 Mello, R., T121, TH81
 Melo, G. M. P., T276
 Mench, J. A., 674
 Mendes, C. Q., T273, TH278, TH288,
 TH289, TH290, TH291, TH292, TH293
 Mendoza, G. D., W97
 Mendoza-Martinez, G., T241, W244
 Meneses-Mayo, M., T241, W244
 Menoyo, D., W118, 297
 Merkel, R. C., 345, 347
 Merks, J. W. M., 355, 529
 Mersmann, H. J., TH60
 Mertens, D. R., 183, 184, 817
 Mertz, K., TH10
 Messer, N. T., 1
 Messina, M. R., T155
 Messina, S. A., W150
 Metges, C. C., T216, T217, W243, TH63,
 TH249
 Metzger, L. E., T44, T45, T50, T52, 138
 Meunier, J. P., T141, T149, T167, W119,
 W262
 Meyer, A. M., 97
 Meyer, D., W173
 Meyer, M. D., TH259, TH260, TH261,
 TH266
 Meyer, N. F., 734, 802
 Michal, J., W261

- Michaud, R., 185, 186
 Michel-Parra, J. G., W298
 Mickelson, J., 29
 Middelbos, I., 175
 Mielenz, M., 71, 72
 Migliazzo, M. F., T189
 Miglior, F., W14, 9, 12, 16, 618
 Mikolayunas, C. M., 499
 Miles, E. D., 78
 Miles, J., 663
 Millen, D. D., T122, W25, W26, W108,
 W109, W249, W250, W265, W272,
 W273, TH222, TH227
 Miller, D. D., 696
 Miller, D. J., 568
 Miller, D. N., 311
 Miller, J. E., T271, 494
 Miller, M., 411, 599
 Miller, M. F., 459, 460
 Miller, M. J., W78
 Miller, P. S., 197, 563
 Miller, R. H., T18, T19, T21, 13
 Miller, R. K., 212
 Miller, S. P., 404, 410
 Milliken, R. S., T64
 Millman, S. T., 380, 386
 Millner, A., 268
 Mills, J. A. N., 308
 Min, B. J., 196, 705
 Min, B. R., W174, W247, W275, TH223
 Miracle, R. E., T46, W71
 Miraei Ashtiani, S. R., W30
 Miranda, J., W203
 Miranda, M. A., 275
 Mireles, M., TH294
 Miró, L., TH8
 Mishellany, A., T167
 Mistry, V. V., 43
 Misztal, I., T26, 17, 18, 171, 532, 535, 620,
 757
 Mitchell, A. D., TH64
 Mittelman, N. S., 51
 Mix, N., 424
 Miyagi, E. S., T83
 Miyamoto, A., T185
 Mjoun, K., 56
 Moallem, U., TH179
 Mobini, S., TH277
 Moffet, C. A., 349, 350
 Mohamed, D. A., 25
 Mohammadabadi, T., T245
 Mohammadi, G., W151, W152
 Mohammad Nazari, B., T14
 Mohran, M. A., 45
 Mojtahedi, M., TH220, TH221
 Molenaar, A., 807
 Molist, F., W281, W282, 205
 Moll, J., TH112
 Molle, G., 384
 Monson, D. A., 705
 Montalvo, G., 658
 Montalvo-Paquini, C., W244
 Montañez-Valdez, O. D., T84, W230, W255,
 W298
 Montel, J., 133
 Montelongo, M., 393
 Montero-Lagunes, M., T59
 Monterrosa, V., W267
 Montoya-Escalante, R., 495
 Mook, J. L., TH279
 Moon, H. G., T142, TH121
 Mooney, C. S., W205, TH4, 343, 583
 Moore, D., T3, T285, 573
 Moore, E. S., TH9
 Moore, J. A., T290, T291
 Moore, J. M. B., 360
 Moore, S., 212
 Moore, S. S., 410, 768
 Moorefield, J., W138
 Moradi Shahrababak, M., T16, W30, W31,
 TH217
 Morais, J. A. S., T243, W251
 Morales, J., W133
 Morales-Treviño, H., TH294, 440
 Morales-Zambrano, I. E., W230
 Moraru, C., TH19
 Moraru, C. I., TH24
 Moravej, H., W126
 Moreira, F., W191
 Moreira, M. Z., W256
 Moreira, P. S. A., W15, W16
 Morel, I., T185, 75
 Morelli, J., 254
 Moreno, J. F., TH173
 Moreno, R., 563
 Moreno-Valdéz, A., T84
 Morera, P., TH164
 Moretó, M., TH8, 595
 Moretti, M. H., TH44
 Morgan, M., 95, 96
 Moriel, P., T182
 Morin, D. E., T8
 Moron-Fuenmayor, O. E., T111
 Morotti, F., T234
 Morrical, D., TH35, 437
 Morris, A., T11
 Morrow, W. E. M., 709
 Moschini, M., TH245
 Moseley, W. M., W245
 Mosenthin, R., 209
 Moser, D. W., W44, 65
 Moser, R., T164
 Mosley, E. E., T257
 Moss, J. I., TH182
 Motaghedi, A., W151
 Mote, B., W300, 534
 Moue, M., 610
 Moulton, K., T3, 475, 573
 Moura Dian, P., TH231
 Mourão, G. B., TH293
 Mousel, M. R., 348, 350
 Moussaoui, Y., 821
 Moya, D., W215, 740
 Moyes, K. M., T8, 609
 Moynihan, J. M., T68
 Muck, R. E., T90
 Muir, J. P., T280, T295, W103
 Mujabi, F. D., 768
 Mukesh, M., 606, 609
 Mullarky, I. K., TH180, 234, 677
 Mulligan, F., 741
 Mullinix, Jr., B. G., 600
 Mullins, C. R., 53
 Mullis, N. A., 94
 Muntifering, D. M., 644
 Muntifering, R. B., W98, TH42, TH45
 Murillo-Ortiz, M., W106, W238, TH51, 495
 Murphy, K. D., T249
 Murphy, M. R., T97
 Murray, D. P., 501
 Murrieta, C. M., 332
 Muset, G., T202
 Mussa, P. P., 416
 Musselman, A. F., TH282
 Musselwhite, A. N., 576
 Musser, R. E., T109, T110, T161, T162
 Mutsvangwa, T., T200, T226
 Muumba, J., 86
 Myer, R. O., W37, W38, W39, W102, 598
 Myers, D. M., 313
- ## N
- Naaz, P. N., TH255
 Nabte-Solis, L., TH69
 Nacer, F., 95, 96
 Nadarajah, K., W98
 Naeemipour, H., T13, T14, T15, T140
 Nagaraja, T. G., T75, 344
 Nakahashi, Y., W19
 Nakao, T., W205
 Nall, J., TH58
 Namroud, N. F., 204
 Nap, R. C., 416
 Naranjo, V. D., TH149
 Narciso, C., W96, W171
 Narciso, C. D., W155, W188, W221, TH184
 Nardon, R. F., TH82
 Nardone, A., T4, W8, TH164, 246
 Nascimento, A. B., W158
 Naserian, A., T225
 Nash, T. G., 211
 Nasiri, M., TH211
 Nasiri, M. R., T245
 Nasirimoghadam, H., T233
 Nasri Moghaddam, H., TH272
 Nathanielsz, P. W., 472, 473, 474
 Navarro, F., 193, 699, 706, 708
 Navidzadeh, S. M., W29
 Nayigihugu, V., 332
 Ndegwa, P., 307, 341
 Neary, M. K., TH282
 Nebel, R. L., W164, TH173, TH174, TH176,
 33, 603
 Nebzydoski, S. J., 160
 Necaie, K., 475
 Neel, J. P. S., TH43, 464, 465
 Negrão, J. A., TH214
 Neibergs, H., T28
 Neill, S., T123, T124
 Nejati-javaremi, A., T115, T116, W200
 Nelson, T., W87

- Nelssen, J. L., T128, W132, TH124, TH145, 158, 195, 562, 697, 775, 777, 778
- Nelssen, J. L., TH132, 786
- Nemec, L. M., 160
- Nery, J., 176, 416
- Nestor, K. E., 93
- Nestor, Jr., K. E., W117
- Nettleton, D., 527
- Neuendorff, D. A., TH205, 477
- Neuendroff, D. A., 317
- Neufeld, K., 356
- Nevárez-Carrasco, G., W258, TH51, 495
- Neves, C. A., T121
- Newbold, J. R., 337
- Newbold, M., TH24
- Newbold, M. W., TH19, 510
- Newburg, D. S., 808
- Newman, Y. C., T81
- Newton, B., 369
- Nguyen, H. V., 279
- Nguyen, P., 176, 416
- Nichols, A. J., 800
- Nichols, D. A., 507
- Nichols, W. T., 460
- Nicholson, J. D. W., 458
- Nickerson, S. C., 247
- Nicodemus, M., T288, TH83
- Nicolazzi, E., 617
- Nicolazzi, E. L., 619
- Nicolussi, P., T211, 117
- Nielsen, B. D., 443, 445, 549, 551
- Nielsen, M. K., 624, 767
- Nielsen, M. O., TH238
- Nielsen, S., 792
- Nienaber, J. A., 724
- Niero, L. F. S., TH227
- Nieto, J., TH101
- Nieto, M., W292
- Nieto, R., T108, W136
- Nightingale, C. R., W242
- Nikkhah, A., T115, T116, T201, TH251, 91, 584
- Nikkilä, M., W300, 534
- Nimmo, R. D., T136, T158
- Nisbet, D., T138
- Nisbet, D. J., T76, T256, 395
- Nitsch, S., 370
- Niven, S. J., 191
- Nixon, M., 12
- Nkrumah, D. J., 403, 404, 405, 768
- Noblet, J., 701, 782
- Nobre, P. R. C., W46
- Nocek, J., 333
- Nofrarías, M., 205
- Noguera, J. L., W52
- Noland, E., W81
- Noorbakhsh, R., W148
- Norat-Collazo, L. M., 330
- Norell, R. J., T86
- Norman, H. D., T17, T18, T19, T20, T21, 10, 13, 14
- Norman, R., TH41
- Noroozi, M., T201
- Northup, B. K., 272
- Norwood, F. B., 259
- Notter, D. R., 349, 350, 497
- Nouira, W., T40
- Nousiainen, J., 816
- Novak, S. W., 557
- Nudda, A., T54, T211, T246, T254
- Nuernberg, G., T176, TH63
- Null, D. J., T6
- Núñez, O. G., TH275
- Nussio, L. G., T91, TH291
- Nuti, L. C., 758
- Nyachoti, C. M., T165, TH137, 190, 695, 772
- O**
- Oba, M., T99, T197, 55, 586, 728, 788, 794
- Obregon, J. F., W238, W240, W241, W258, W259, TH147, TH148, TH276, TH283
- O'Brien, M. D., TH161, TH163, 86, 88, 373
- O'Callaghan, D. J., T56
- O'Connell, J. R., T31
- O'Connor-Robison, C. I., 443, 445, 549, 700
- Odde, K. G., T228
- Oddy, A., 80
- Odhiambo, J. F., TH172
- Odle, J., W130, TH131
- O'Doherty, J. V., T150, W120, W286, 703
- O'Donnell, A. M., 51
- O'Donnell, C. P., T56
- O'Driscoll, K., W11, 751
- Oelker, E. R., 736
- Ogawa, E. S., W108, W109
- Ogejo, J. A., TH263
- Ogg, C., T51
- O'Grady, L., 741
- Oh, H. K., W121, W122
- Oh, S., W85
- Oh, S. J., W283, W284, W285
- Oh, S.-H., W47
- O'Hanlon, P., T247
- Ohene-Adjei, S., 39
- Ohh, S. J., TH153
- Ohmiya, H., T30
- Okine, E., 728
- Okoya, I. S., W49, W194
- Okumura, T., W19
- Ola-Gbadamosi, I. O., W49, W194
- Olea, W., TH111
- Oliveira, A. S., T250, T251
- Oliveira, D., T277
- Oliveira, L., T9
- Oliveira, R. A., W155, W188, W221, TH184
- Oliver, S. P., 542
- Oliver, W., 663
- Olsen, J. R., 479, 480, 572
- Olsen, S. C., 115
- Olson, D., W84
- Olson, J., W187
- Olson, K. C., W44, W270, 273, 392
- Olson, K. E., T71, TH15, 142
- Olson, K. M., 127, 761
- Olson, T. A., 82
- Oltjen, J., 795
- Oltjen, J. W., W22, 313, 796
- Olukosi, O. A., 207
- Olynk, N. J., 90
- O'Mara, F. P., W206
- Omidi, A., TH5, TH6
- Ominski, K. H., TH52, TH264
- Onteru, S., W300
- Ontiveros, J. C., TH275
- Opapeju, F. O., TH137, 772
- Oppy, J., 371
- Orellana, D., T69
- Orellana, R. A., 279
- Orozco, P., TH210
- Orozco-Hernandez, R., 723
- Ortega, J. A., TH275
- Ortega-Gutiérrez, J. A., W111, W112, W113
- Orth, M. W., TH237, 508, 700
- Ortigueas-Marty, I., T229
- Ortiz, J. J., TH276
- Orunmuyi, O., W49
- O'Shea, C. J., 703
- Osorio, J. S., 667
- O'Sullivan, J. T., W120
- Otles, Z., TH197
- Ott, T. L., W145
- Ouellet, D. R., TH249, 185, 186
- Overton, M. W., 143, 248
- Overton, T. R., T101, T183, T184, T265, W186, 77, 93, 450
- Owen, G. S., TH86
- Owens, F. N., TH16
- Owens, K. M., TH87
- Owens, S. L., W138
- Owsley, W. F., T60, T61, 487
- Ozimek, L., TH25
- P**
- Pacheco, G. R., TH198, TH199, TH200, TH201
- Pachaeco, L. A., W44, W270, 392
- Pacheco, R. D. L., T122, W25, W26, W108, W109, W249, W250, W265, W272, W273, TH222, TH227
- Pack, J. D., 283, 284, 715, 719
- Packer, I. U., TH82
- Paddock, Z. D., W276
- Padiernos, C., 649
- Padilla, A., T138
- Paez, A., T111
- Pahm, A. A., 210
- Paine, L., T68
- Paisley, S., 432
- Paiva, L. M., W248
- Pajor, E. A., 379
- Pakdel, A., T16
- Palin, M. F., TH109, TH239
- Palmonari, A., T79, W231
- Paltanin, C., T253
- Pampusch, M. S., TH77
- Panciroli, A., T137
- Pandit, A. J., 21, 47
- Pantoja, J., T74
- Pape, D., 304

- Parada, P., TH101
Paranhos da Costa, M. J. R., TH37
Pardo, R. M. P., T235
Parik, R., W13
Parisi, B., W66
Park, C. S., TH117
Park, J. C., T153, TH121
Park, K. W., TH140, TH141
Park, S. I., T129
Park, S. J., 196
Park, Y. W., T40, W67, 513, 517
Parker, D. B., 310
Parker, K. R., 576
Parkhurst, A., TH13
Parkinson, S. C., T86
Parks, A. G., TH9, TH11
Parks, C. W., 295, 711
Paroczay, E., T125
Parr, E. N., 564
Parrili, M., W25, W26, W249, W250, W272, W273, TH227
Parrish, F. C., 556
Parrish, J. J., 364, 366, 569
Parsons, C. M., TH268, 210, 588
Parsons, G. L., 214, 338, 339, 804
Partyka, K., W21
Paschal, J. C., 458
Pascoa, A. G., TH37
Pasteiner, S., T89, T94
Pastorek, A., TH27
Patel, D. A., 542
Patel, O., TH115
Paterson, J., 428, 432
Patra, A. K., T282, TH102
Patskevich, V., TH10
Patterson, D. J., 652, 717, 718, 722
Patterson, J., T73
Patton, R. A., TH255
Paul, M., W75
Paula, R. M., W248
Paulino, M. F., W248
Paulino, P. V. R., T120, TH218
Paulus, T. J., 155
Pauly, C., 296
Pavan, E., TH71, TH72
Payeur, J. B., 484
Payne, F. A., T56
Payne, R. L., TH133, TH134, TH137, 772, 783
Paz-Gamboa, E., T59
Peacock, M. M., 372
Pearson, R. E., TH178
Pecorini, C., 810
Pedroso, A. F., W196
Peek, S. F., 52, 155
Peel, R. K., TH80
Peeler, I. D., 603
Peixoto, M. G. C. D., TH106
Pellegrini, P., T202, T214
Pellerin, D., TH273
Pelletier-Grenier, M., TH119
Pelzer, D., T71
Pena, G., T69, T70
Peña, J. R., TH275
Penasa, M., 15
Pendergraft, J. S., T293
Peng, J., TH100
Peng, Y., 515
Penner, G. B., T99, T197, 55, 788
Pennington, K. A., W144
Pepper, A. R., 748
Perdok, H. B., 337
Perdomo, M., 607
Pereira, A. C., TH42, TH45, TH198, TH199, TH200, TH201
Pereira, A. S. C., W256, TH280, TH281
Pereira, L., W6
Pereira, M. N., W208, TH262
Pereira, O. G., W235, W236
Pereira Filho, J. M., T281
Perez, A. B., TH283
Pérez, G. M., TH275
Pérez, J. F., W119, W281, W282, TH152, 205
Pérez-Bosque, A., TH8, 595
Perkins, N., 387
Perry, B. L., W160, 721
Perry, G. A., W160, 300, 721
Persia, M. E., W226
Peruca de Melo, G. M., TH47
Pescador, N., W97
Pescara, J. B., TH234
Peters, D., TH145
Peters, D. N., TH139
Peters, R. R., T5
Petersen, G. I., 564
Petersen, J., 336
Peterson, C., 247
Petersson, K. H., 27, 501
Petersson-Wolfe, C. S., 27, 234
Petit, H. V., T208, T209, T210, T219, T220, 185
Petriglieri, R., 813
Pettigrew, J. E., T158, T163, 197, 210, 368, 561, 773
Petzke, T., 687
Peyron, M. A., T167
Pfeiffer, F. A., TH274
Phadungath, C., T44, T45
Phandanouvong, V., T138
Phatak, S. C., 598
Philipp, A., TH242
Philipp, D., T80, 597
Phillips, A. T., 44
Phillips, R. L., 182
Phillips, W. A., 272
Pholsing, P., W34
Phyn, C., 454
Piantoni, P., 278, 819
Piao, L. G., W121, W122
Piao, X. S., TH153
Piccioli-Cappelli, F., T224
Pichler, E., W7
Piedrafita, J., 760
Pierce, J., TH146
Pierce, K. M., W286
Pierfax, C., T283
Pierzynowski, S. G., TH61, TH62
Pietrosemoli, S., T111
Pighetti, G. M., W18
Piles, M., W41
Piña, B., TH275
Pina, D. S., T250, T251
Pinchak, W. E., W247, W275, TH223
Pineiro, C., W133, 658
Pinos-Rodriguez, J. M., W255
Pinotti, L., T253, TH107, 823
Pinto-Jacobo, M. A., W298
Piperova, L. S., T102, TH103, TH104, TH246, 119, 555, 678, 681
Pires, A. V., T118, T273, TH278, TH288, TH289, TH290, TH291, TH292, TH293
Pires, J. A., T221
Pires, J. A. A., W218, TH234, TH244
Pirisi, A., T254
Pisel, J., T252
Pitre, A. L., 113
Pittman, M. R., 379
Piva, A., T137, T155
Piva, G., TH245
Pizzamiglio, V., T155
Plain, R. L., 32
Plaizier, J. C., W100, TH264
Platter, W. J., 218, 461
Plaut, K., TH115, 687
Plitzner, C., 356
Podetti, M., 486
Pohlmeier, W. E., TH17
Pol, M. V., T212
Poletto, R., 382
Polizel Neto, A., W15, W16
Pollak, E. J., 169, 170, 746, 747, 748, 749, 750
Polo, J., TH8
Ponce, E., W252
Pontes, E., 82
Poock, S. E., 652
Poole, M. C., TH169
Poore, M. H., T284, 733, 800
Popp, M., 597
Porres, J. M., 303
Porter, J. H., T117, T177, T237, TH228
Portillo, J. J., W240, W259, TH166, TH276
Posadas, S., T286
Powell, J. G., 391
Powell, R. L., T17
Powell, S., TH149
Powell, T. H., 692
Pozzo, S. S., T7
Prado-Cooper, M. J., W146, W147, TH165
Prados, L. F., T120
Prates e Oliveira, A., TH47
Pratt, S. E., TH85, TH87, TH96
Pratt, S. L., W299, W302, TH71, TH72, TH167
Preseault, C. L., W207
Preston, R. L., 394
Preynat, A., TH239
Price, P. L., W173, 332
Prieto, B., T106
Pringle, T. D., T287, W139, 353, 458
Pritchard, R. H., 147, 668
Prola, L., 416
Proszkowiec-Weglarz, M., W9
Proudfoot, K. L., 814
Provenza, F. D., 383
Prusa, K., T126, 292, 562
Prusa, K. J., 786

Puchala, R., T274, T282, 345
Puffenbarger, S. M., T66
Puggaard, L., T193
Puigvert, X., T134
Pulina, G., T54, T211, T246, T254, 117
Puntenney, S. B., 250
Purdy, P., W50, 570
Purevjav, T., TH197
Purohit, D. H., 41
Putarov, T. C., W108, W109
Pyatt, N., W263
Pyatt, N. A., T240, 803
Pye, G. W., 179

Q

Qu, A., 661
Qu, L., 527
Quaas, R. L., 407
Quarles, S., 111
Queiroz, M. A. A., TH288, TH289, TH290, TH292
Queiroz, M. F. S., T191, T243, W251
Queiroz, O. C., W196
Quesnel, H., TH168, 818
Quinn, M. J., 789
Quintero-Martínez, R., W104, W105

R

Rabiee, A. R., 225, 742, 791, 792
Radcliffe, J. S., TH93, 68, 312, 698
Raddatz, J. R., T175
Rademacher, M., 209
Radhakrishna, R., TH90
Radunz, A., TH285
Radunz, A. E., 402
Rae, D. O., W37, W38, W39
Raeth-Knight, M., TH188, TH189, TH190, TH191, TH192, TH193, TH194
Raffrenato, E., TH57
Rafiee, H., T192
Ragagnin de Lima, M., W150
Rahimi, A., 666
Rahmatimanesh, A., W225, TH209
Rajbhandari, P., T51
Raji, A. M., 159
Ramirez, N. D., 317
Ramírez-Godínez, J. A., W161
Ramos, S., T248, TH212
Ramsey, S., 138
Ranathunga, S. D., 585
Randel, R. D., W24, TH205, TH207, 74, 152, 316, 317, 374, 477, 576, 577, 578
Raney, N. E., 413
Ranilla, M. J., T248, TH212
Rankin, M. K., T7
Rankin, S. A., T39, TH34, 512
Rao, H. G. R., 541
Rapetti, L., T82, W99
Rapisarda, T., 187, 539, 815

Rasby, R., 432
Rashidi, A., W30
Rashmir, A. M., 548
Rasmussen, S., TH175
Rasmy, N., 26
Rastani, R. R., TH206
Rathmann, R. J., TH226, 459
Raun, B. M. L., T261
Rauw, W., T63
Rauw, W. M., 372, 411, 536
Razook, A. G., TH82
Razz, R., W91
Reagan, J. O., 150
Rebollar, S., W96, W97
Rebucci, R., 810
Recktenwald, E. B., T265
Reddish, J. M., T36
Reddy, G., T278
Reddy, N. R., W66
Redmon, L. A., 545
Reed, J. D., 462
Reed, M., TH263
Reeves, J. J., W150
Reeves, S., W64
Rego, K. A., 27
Rehberger, T., T164
Rehberger, T. G., TH10
Rehfeldt, C., T176, TH63
Reich, L. J., T93, T95
Reijs, J. W., 189
Reilly, P., W286
Reinemann, D., T74
Reinhard, M. S., T280
Reinhardt, C. D., 64
Reinhardt, T. A., 605
Reis, R. A., T118, T243, W251, TH37, TH44, TH224, 438
Reischl, S., W116
Rekaya, R., T37, 262, 525, 630, 757
Remonatto, R., TH199, TH200, TH201
Remonatto, R. L., TH198
Rempel, L. A., W51
Remsberg, D., 793
Rensburg, D. W., 107, 116, 251
Ren, F. Z., W291
Renaud, A. M., TH34
Renaud, J., TH250
Reneau, J. K., W180
Rengman, S., TH61, TH62
Renney, D. J., 800
Renter, D. G., T75
Rentfrow, G., W239, TH125, 730
Renyte, J. A., W77
Rérat, M., TH242
Resende, K. T., T276, T277, T281
Reuter, R. R., TH226
Revelo, X. S., 120
Reyes-Estrada, O., W106, TH51
Reyna-Islas, R., 336
Reynolds, G. W., 220, 485
Rezaii, F., T244, TH211
Rezamand, P., W199
Rezayazdi, K., T115, T116, T242, W200, TH286, TH287
Reza-Yazdi, K., TH217

Rezende-Paiva, S., W57
Rhoades, M. B., 310
Rhoades, R. D., 149
Rhoads, R. P., TH161, TH163, 86, 88, 373, 661
Rhoderick, M. B., 127
Ribeiro, A. F., T118, T191
Ribeiro, F. R. B., 212
Ribeiro, J., T234
Ribeiro, K. G., W236
Ribeiro, M. F., T273
Richard, C., TH269
Richards, C. J., 589
Richardson, M. J., W263
Richert, B., 785
Richert, B. T., 312, 379, 382, 698
Richeson, J. T., T64, 391
Richter, R., 537
Richter, S., T185, 75
Ridha, B., W127
Riggins, J. C., TH40
Riggs, L., TH65, 660
Rigueira, J. P., W235
Riley, D. G., W37, W38, W39
Rincker, D., 667
Ringler, J. E., TH99
Rink, A., 411
Rinne, M., 592, 816
Riojas, A. V., W103
Rios, D., W87
Rios, F. G., W238, W240, W241, W258, W259, TH147, TH148, TH276
Ripoll, G., T114
Risley, C. D., 777, 778
Risley, M. E., W162
Ritter, M., 241
Ritter, M. J., 295, 711
Rius, A. G., TH68, 60
Rivera, F., W155, W171, W188, TH184
Rizzi, N., T82
Roça, R. D. O., W15, W16, W249
Robbins, K. R., T37, 525
Robblee, M. M., 682
Roberts, K. S., T117, TH228
Roberts, M. P., 245
Roberts, R. F., 44, 118
Robertson, M. W., 671, 744
Robinson, J., W14
Robinson, P. H., W173, W185, TH270
Robinson, V., 469
Robison, J., TH270
Robison-O'Connor, C. I., 551
Rocha, A. A., W248
Rocha-Chavez, G., T84, W230, W298
Roche, J., 454
Roche, J. R., TH241, 73
Rocke, T., 572
Rodenburg, J., 12
Rodning, S. P., TH133, TH134
Rodrigues, É., T122
Rodrigues, G. H., T273, TH278, TH288, TH289, TH291, TH292, TH293
Rodrigues, J. F. H., W45
Rodríguez, A., T214

- Rodríguez, F., T138
 Rodríguez, M. A., T202
 Rodríguez, N., 639
 Rodríguez-Almeida, F. A., W161, TH275
 Rodríguez-Alvarado, C., TH294
 Rodríguez-Lopez, J. M., T108, W136
 Rodríguez-Muela, C., W110, W111, W112, W113
 Rodríguez-Prado, M., W271, 738
 Rodríguez-Ramírez, H. E., W110, W111, W113
 Rodríguez-Saona, L., TH28, 48
 Rodríguez-Saona, L. E., T53, TH22
 Rodríguez-Zas, S. L., TH104, 555, 683, 819
 Roelofs-Prins, D., 529
 Rogers, G. W., T1, T22
 Rogers, N. R., T41
 Rohrer, G. A., W51
 Rojas, P. J., W266
 Røjen, B. A., T260
 Rojo, R., W96, W97
 Rolfe, K. M., 624
 Romano, J. E., 762, 763
 Romero-Villalobos, S., W113
 Romnee, J.-M., 614
 Romo, J. A., W266, W267
 Ronchi, B., TH164, 246
 Roneker, K. R., 696
 Roper, S., T278
 Rosa, G. J. M., T262, W45, 408, 526, 625
 Rose, M. C., 24
 Rosen, C. J., W175
 Rosenkrans, Jr., C., 597
 Rosenstein, D. S., 445
 Rosi, F., 823
 Ross, D. A., T265, TH69
 Rossi, G., T79
 Rossi, L., 810
 Rostagno, M., T73
 Rothschild, M., 534
 Rothschild, M. F., W300
 Rouquette, Jr., F. M., TH49, 545
 Roura, E., T134, T135, TH136
 Rovai, M., 347
 Rowntree, J., 104
 Rowson, A., 250
 Rozeboom, D. W., 360
 Rozeboom, K. J., 569
 Rubattu, R., T54
 Rubio Robles, M. C., W58, W59
 Rude, B. J., 799
 Ruegg, P., T9, T74, 257
 Ruegg, P. L., T10, T12, 820
 Ruggieri, A. C., TH37, TH44
 Ruggieri, A. C. R., 438
 Ruiz de la Torre, J. L., 756
 Ruiz-Barrera, O., W110, W112, W113
 Rule, D. C., 332
 Rumph, J. M., 170, 628
 Rungruang, S., W178
 Rupasinghe, H. P. V., 24
 Rushen, J., W193
 Russell, J., TH35, TH36, 436, 437
 Russell, J. B., T90, 397
 Russell, L., TH8
 Rutherford, W. C., T60, T61, W23, 623
 Rutten, M. J. M., 529
 Rutz, F., 194
 Ryan, C. M., T101, W186
 Ryan, P., T3, 389, 475
 Ryan, P. R., 548
 Rychlik, J. L., 395
- S**
- Sa Filho, O. G., T182
 Sabharwal, R., W149
 Saddoris, K. L., 192
 Sadler, L., 241, 754
 Sadler, L. J., TH2
 Saghi, D. A., W28
 Sahlu, T., T269, T282, 345
 Sainz, R. D., T119, W22, TH214, TH218, 313
 Saito, T., 22, 610
 Sakugawa, J. K., W21
 Salak-Johnson, J. L., 378, 609, 746, 747, 748, 749, 750
 Salama, A., 105
 Salama, A. A. K., 498, 500, 821
 Salazar, S., W107
 Salem, A.-F. Z. M., 745
 Salem, M., TH162, 714
 Sales, M. F. L., T120
 Salim, E. M., 42
 Salim, H., W234
 Salmon, H., 806
 Salunke, P., T52
 Salvador-Torres, F., W111
 Samford, R. A., 196
 Sampson, J., W213
 Sampugna, J., 119
 Sanches, G. M., T25
 Sánchez, A. I., W58, W59
 Sánchez, J. M. I., W107
 Sánchez, J. P., 757
 Sanchez, U., W252
 Sanchez, W. K., 742
 Sanchez-Dávila, F., TH294
 Sanders, A. H., W190
 Sanders, S. R., TH161, TH163, 373
 Sandrucci, A., W99
 Sangabriel, W., TH101
 Santana, H., TH215
 Santana, M. C. A., T118, TH46
 Santibañez-Escobar, R., W298
 Santos, G. T., T219
 Santos, J., 248
 Santos, J. E., W188, W189, W191
 Santos, J. E. P., T222, T263, W155, W171, W219, W221, TH184
 Santos, M. C., T95
 Santos, R. M., W157
 Santschi, D. E., TH235
 Sapienza, D. A., T87
 Saraiva, T., TH48, TH50
 Saremi, B., 666
 Sargolzaei, M., 410
 Saro, C., T248, TH212
 Sarti, L. M. N., T122, W108, W109, W249, W250, W265, W272, W273, TH222, TH227
 Sartin, J. L., 152
 Sartini, B. L., W56
 Sathonghon, W., W178
 Sato, T., 22
 Sauerwein, H., 71, 72
 Saunders, L. S., T60, T61
 Sauvant, D., 812
 Savell, J. W., T127, 458
 Savin, M., 597
 Savoini, G., T227, T253
 Sawyer, J. E., W27, TH49, 63, 132, 149, 318, 752
 Sawyer, J. T., T109, T110, T112, T113
 Scaglia, G., TH39, TH203
 Scanes, C., 475
 Scarpa, A. B., TH185
 Scatena, T. S., T182
 Schachtschneider, C., 126, 280
 Schadt, I., 187, 539, 813
 Schaefer, D. M., 462
 Schaeffer, L. R., 12, 618
 Schafer, D. J., 718
 Schaffer, E., 247
 Scharenberg, A., 188
 Schatzmayr, G., T89, T94, T159, 370
 Schauff, D., 38
 Scheffers, J. M., 83
 Schenck, E. L., 381
 Schenkel, F., 261, 263, 410
 Schenkel, F. S., 524
 Schennink, A., 611, 615
 Scherer, C. S., 210
 Schillo, K. K., 78
 Schinckel, A., TH150, 785
 Schingoethe, D. J., 56, 144, 331, 585
 Schlegel, M. L., 180
 Schlegel, P., TH126
 Schlegel, S., TH112
 Schlessler, J. E., W66
 Schlotterbeck, R. L., 216, 221
 Schmidt, D. A., 179
 Schmidt, J., 599
 Schmidt, R. J., T91, T92, T93
 Schmidt, S. P., TH42, TH198, TH199, TH200, TH201
 Schmidt, T. B., 389, 392
 Schnabel, R. D., 261, 524
 Schneider, C., 307, 341
 Schneider, F., T216, T217
 Schneider, S., 352
 Schnell, S. A., 11
 Schocken-Iturrino, R. P., TH224
 Schoenberg, K. M., T183
 Scholljegerdes, E. J., W274, 325
 Scholz, A. M., 352
 Schönhusen, U., W243, TH249
 Schoonmaker, J. P., 727
 Schopen, G. C. B., 615
 Schott, II, H. C., 549
 Schrick, F. N., TH12, TH40, TH41
 Schroeder, G., W223

Schroeder, J. W., T228
 Schukken, Y., T28, 481
 Schulte, H. F., 249
 Schultz-Kaster, C., 361
 Schultz Kaster, C. M., 62
 Schutz, J. S., 100
 Schutz, M. M., W11, TH3, TH13, TH204,
 14, 232, 655, 656, 751
 Schwab, C. G., TH268, 588, 657
 Scott, M., W64
 Scott, M. C., T66
 Scott, S. J., 716
 Scramlin, S. M., 461
 Scudder, J. M., 121
 Seabolt, B. S., TH136
 Seangjun, A., T23
 Sears, P. M., 249
 Sebek, L. B. J., 591
 See, M. T., W290, W293, 650, 709
 Seeger, T. K., T85
 Sehested, J., T193
 Seidel, G. E., TH175, 566
 Sejrsen, K., TH105
 Selk, G., 432
 Sellahewa, J., 642
 Sellers, R. S., 488
 Sennikov, S. A., 323, 324
 Seo, C. W., W82, TH23
 Seo, M. H., W72
 Seo, S., 528
 Seok, H. B., TH142
 Serenius, T., W300, 534
 Serrano, M. P., T106, T107, W118, W292,
 TH138, 206, 297
 Sesana, R., T25
 Settles, M., T28
 Sewalem, A., W14, 16
 Sewell, J. R., 803
 Sexton, J., TH225
 Seybold, C., 72
 Seyfert, H. M., T217, 453
 Seykora, A. J., 762, 763
 Shachtschneider, C., 281
 Shackelford, S., 725
 Shackelford, S. D., W54, 311, 724
 Shaeffer, A. D., T284
 Shah, M. A., W223
 Shah, N. P., 423
 Shamsi, K., 647
 Shan, T., W141
 Shan, T. Z., 291
 Shane, E. M., W175, W180
 Shanks, R. D., T27
 Sharma, A., TH114, 683
 Sharman, E. D., 100
 Sharp, D., 282
 Shaver, R. D., W95, W214, TH240
 Sheahan, A. J., 73
 Shelor, M. K., 214, 338, 339, 804
 Shelton, J. L., 443
 Shelton, N. W., 195, 775
 Shenkoru, T., T78
 Shepherd, S. S., T170
 Sherman, E. L., 768
 Sherron, E., 346
 Shi, C. Y., TH156
 Shieh, J. J., T49
 Shimazu, T., 610
 Shimosato, T., 22
 Shin, J., TH59
 Shin, J. H., T36
 Shin, J. S., W220, W229
 Shin, S. O., T143, T146, T152, T153, T154,
 W137, TH121, TH122, TH140, TH141
 Shinde, P. L., T129
 Shingfield, K., 341
 Shivazad, M., 204
 Shockey, D., 95, 96
 Shojaeian, K., T14
 Sholly, D., 785
 Sholly, D. M., 312, 698
 Shouse, S., 322
 Shreck, A. L., W20
 Shwartz, G., 88
 Siari, S., W195
 Siciliano, P. D., TH96
 Siciliano-Jones, J. L., 102
 Sides, G. E., W245, W246
 Sido, J., 587
 Siécola, Jr., S., W208, TH262
 Siemens, M., 34
 Sierra-Vasquez, A., W57
 Siewerdt, F., T5
 Signoretti, R. D., T191
 Sikand, V., W89
 Silk, T., TH26
 Silman, A., TH166
 Silva, A. G., W248
 Silva, H. G., W58, W59
 Silva, J. R. M., W208, TH262
 Silva, L. O. C., W46
 Silva, S. L., T119, TH280
 Silva del Río, N., W142
 Silva Filho, J. C., T235
 Silveira, A. C., W53, W265, TH222
 Silver, G. A., T186
 Silvestre, F., 323
 Silvestre, F. T., T222
 Silvia, W., 237
 Silvia, W. J., 765
 Simal, N., W292
 Simmons, L., 632
 Simmons, L. G., 178
 Simpson, A., 644
 Simpson, M. M., 351, 669
 Simpson, S. B., 123
 Sims, L. E., T240
 Singh, D., TH38
 Singh, K., 453
 Singh, M., W78
 Singh, V., 561
 Sipkovsky, S. S., 289
 Siqueira, G. R., TH224
 Siqueira, R. F., TH214
 Skibsted, L. H., 560
 Skidmore, A., 388
 Skinner, G. E., W66
 Skirpstunas, R. T., 253
 Skow, L. C., 28
 Slayers, A., 396
 Sletmoen, J., W100
 Slifka, K., 181
 Slominski, B. A., T165, 695
 Smeianov, V., 46
 Smith, A. E., 235
 Smith, B. I., 251
 Smith, D. M., 411
 Smith, E. A., 234
 Smith, G. W., W156, W222, TH162
 Smith, H., TH225
 Smith, J., T28, 244
 Smith, J. F., TH171, 80, 81
 Smith, K. E., TH33, 512
 Smith, K. L., T183, T184, 77
 Smith, M. F., W143, W162, W168, W170,
 652, 717, 718, 722
 Smith, P. G., 330
 Smith, R. M., 293, 689
 Smith, S. B., TH58, 63, 149
 Smith, T. K., W60, 301
 Smith, T. P. L., W54
 Smith, T. S., 548
 Smith, W. A., 237
 Smithers, G., 642
 Smits, M. C. J., 308, 591
 Sniffen, C. J., W231, 329
 Snowder, G. D., 385
 Snyder, L. L., 698
 Soares, J. A., 561
 Soares, M. P., TH106
 Soares, T., T235
 Soberon, F., T101, 450
 Sobreira, G. F., TH247
 Sobreira, N., TH185
 Socha, M. T., TH240, 102
 Soder, K. J., 269, 435
 Sodr , L. R. A., 313
 Sofos, J., 543
 Solaiman, S., T278
 Solans, A., W176
 Soledad, M. C. M., T57
 Solis, D., 654
 Sollenberger, L. E., TH48, TH50, 545, 598
 Solomon, M., T125
 Soltani, A., 584
 Somkuti, G., W75
 Somkuti, G. A., W77
 Sommerer, D., T268
 Somni, H. S., 43
 Song, D., W82, TH23
 Song, M., T158, 773
 Song, X. Y., W125
 Sonnenberg, T. D., TH69
 Sonstegard, T. S., 261, 524
 Sorensen, M. T., TH105
 Soria-Flores, A. I., W237
 Soriano, S., W157, TH185
 Soster, D., TH106
 Soto-Navarro, S., W93, W94
 Southern, L., 104
 Southern, L. L., TH149
 Southwick, L. H., 249
 Souza, A. H., W172
 Souza, N. K. P., T250, T251, TH218
 Souza, S. F., T243, T276, W251

- Souza, W. F., W236
 Sowerby, M., T67
 Soyeurt, H., 612, 613, 614
 Spain, J., W213
 Spain, J. N., 57
 Spangler, D. A., T98
 Spangler, M. L., 651
 Spanu, G., T246
 Spears, J. W., 67, 99
 Speidel, S. E., 750
 Spelman, R. J., 409
 Spence, C., TH128
 Spencer, J., TH150
 Spencer, J. D., T164, 564, 700
 Spencer, K., 570
 Spiehs, M. J., 311, 724
 Spiller, S., W50, 570, 759
 Splan, R. K., 502, 504
 Spooner, H. S., 549
 Sproul, A., 392
 Sproul, N. A., W270
 Spurlock, D., 70
 Sreenan, J. M., TH230
 Stabel, J. R., 50, 154
 Stabenow, B., TH63
 Stahl, C. H., 121, 157, 661
 Stalder, K., 359, 361, 534, 754
 Stalder, K. J., W300
 Stallings, C. C., T66
 Staniar, W. B., 442
 Stanko, R. L., 317
 Stanton, A., 386
 Staples, C. R., T81, T222, W196, 323, 324
 Starkey, J. D., 122
 Steadham, E., T126
 Stebulis, S. E., T262
 Steele, J., 46, 136
 Steele, J. L., W80, 23, 45
 Steibel, J. P., 526
 Steidinger, M. U., 773
 Stein, H. H., T136, T158, TH139, 208, 210, 561
 Steiner, T., 707
 Stella, T. R., TH214
 Stelwagen, K., 453, 805
 Step, D. L., W4, 390, 393
 Steri, R., 617
 Sterle, J. A., 364
 Stern, M. D., 588
 Stevens, J., 785
 Stevens, J. G., 698
 Stevens, S. L., T71
 Stevenson, D. M., T262, 340
 Stevenson, J. S., W191, 720
 Stevenson, M. J., TH255
 Stewart, A., T268
 Stewart, B., TH38, 95, 96
 Stewart, F., W100
 Stewart, L. L., T136, T158
 Stewart, T., 570
 Stewart, Jr., R. L., TH266
 St-Gelais, D., 516
 Stika, J. F., 401
 Stobart, R., 759
 Stoffegen, W., 292
 Stone, W. C., W186, 93
 Stoop, W. M., 611
 Stothard, P., 410, 768
 St. Pierre, N., 106
 St-Pierre, N. R., 223
 Strang, B. D., W223
 Streeter, M. N., 460
 Stricker, C., 6
 Strickland, J. R., TH12, 2, 3
 Stricklin, W. R., 255, 377
 Strohhahn, D., 432
 Stuska, S. J., TH85
 Suarez, B., 486
 Subramanian, A., 48
 Such, X., T212, 498, 821
 Suchomel, J. M., 378
 Sui, Q., 647
 Sulabo, R. C., 158, 777, 778
 Sullivan, K. E., TH131
 Sullivan, M. L., 753
 Sultan, J. I., 98, 731
 Summer, P., TH265
 Summers, C. R., T289
 Sumner, J., 280, 281
 Sun, P., T132
 Sunny, N. E., W138
 Suryawan, A., 279
 Susin, I., T273, TH278, TH284, TH285, TH288, TH289, TH290, TH291, TH292, TH293
 Sutherland, M. A., TH171, 243, 244
 Sutton, A. L., 312, 698
 Suwanasopee, T., W34, W35
 Suzuki, M., T24, T30
 Svendsen, J., TH61
 Swann, J., TH133, TH134
 Swanson, K., 453
 Swanson, K. C., W234, TH229
 Swanson, K. S., 177, 178
 Swartz, H. A., T268
 Swecker, Jr., W. S., TH39, TH43, 464, 465
 Sweeney, T., W286, 703
 Swingle, R. S., W245, 735
 Swinker, A., TH88, TH89, TH90, TH91
 Swyers, K. L., W242
 Syed Reza, M. A., W31
 Szabó, F., W17, W32, W33, W36
- T**
- Tager, L. R., 478
 Tahmasbi, I., T15
 Tahmasebi, A., TH220, TH221
 Taibl, J., 570
 Tallon, R., 427
 Tamburini, A., W99
 Tan, B. E., W125, W287, W288, W289
 Tanan, K. G., 221
 Tang, W. J., W125, W140, TH155, TH159
 Taniguchi, M., 55, 788
 Tao, S., 457
 Tapia-Gonzalez, J. M., T84, W230
 Tashakkori, T., TH272
 Tassoul, M. D., W95, W214
 Tauck, S. A., 479, 480
 Tauzel, J. P., W186
 Tavendale, M. H., W63
 Taylor, A. R., TH94
 Taylor, J. F., 524
 Taylor, S. J., T263
 Taylor-Edwards, C. C., W253, TH79
 Taysom, D., T87
 Tedeschi, L. O., T266, TH82, TH106, 212, 229, 309, 463
 Tedó, G., T134
 Teixeira, I. A. M. A., T276, T277, T281
 Tejido, M. L., T248, TH212
 Tekippe, J. A., 129
 Telles, E., T119
 Tempelman, R. J., 7, 222, 526
 ter Wijlen, H., W215
 Terre, M., W5
 Terrill, T., T285
 Terrill, T. H., T40, T271, 494
 Terry, E., W261
 Teter, B. B., 119
 Tetrick, M. A., 419
 Tewolde, A., 672
 Tewolde-Medhin, A., T84
 Thain, D., 411
 Thaler, R. C., TH145, 562
 Thatcher, A., 555
 Thatcher, W. W., T222, W155, W171, 323, 324
 Theil, P. K., T260
 Thering, B., TH103
 Thivierge, C., TH239
 Thomas, D. L., 499
 Thomas, M., TH66
 Thomas, M. D., W270, 392
 Thomas, M. G., T186
 Thompson, V. F., 557
 Thomson, D. U., 392
 Thorn, B., 534
 Thorson, J. F., TH97, TH98, 286, 287
 Throop, C., 387
 Thurgood, J. E., 49
 Tilbrook, A. J., 671
 Timms, L. L., 252, 254, 305
 Tipton, S. G., 548
 Tirabasso, P. A., TH284, TH285
 Titus, J. G., TH110, 123
 Todd, R. W., 310
 Tohno, M., 22, 610
 Tokach, M. D., T128, W132, TH124, TH132, TH145, 158, 195, 562, 697, 775, 777, 778, 786
 Tomasula, P. M., T49
 Tomaszewski, M. A., 318, 752
 Tomlinson, D. J., 102, 667
 Tong, J., 691
 Tong, J. F., 277
 Tong, P., TH31
 Tong, P. S., W89
 Tonhati, H., T25
 Tooker, M. E., 522
 Toosi, A., 407
 Topper, D., TH256

Topper, P. A., TH256
 Torrence, M. E., 542
 Torrent, T., W176
 Torrentera, N., W252
 Torres, A., 267
 Torres, D., TH111
 Torres N., F. G., W58, W59
 Torres, Jr., R. A. A., W46, 215
 Torrey, S., T104, 242
 Tossenberger, J., W114, W115, W116
 Tournier, C., 176
 Townsend, J., TH13
 Tramontana, S., TH114, 683
 Tramontini, R. de C. M., T83, T234
 Traylor, S. L., 417
 Trejo, C., 389
 Trejo, C. O., W20, 211
 Tremblay, G. F., 185, 186, 794
 Trenkle, A., 668
 Trenkle, A. H., 727
 Treviño-Ramírez, J. E., W104, W105
 Trevisi, E., T223, T224
 Tricarico, J. M., TH266
 Trott, J. F., 685
 Trottier, N. L., 288, 289
 Trujillo, A. J., 821
 Trujillo, J. D., 253
 Tsai, C. C., W301
 Tsai, T. C., T156
 Tseng, Y. C., W76
 Tsuruta, S., T26, W46, 17, 18, 532, 535, 620
 Tucker, C. B., 87
 Tuminello, L., T55, 540
 Tunick, M. H., T49
 Tuñón, G., 486
 Turgeon, O. A., W246
 Turgeon, S. L., 516
 Turiello, P., T286
 Turner, L. G., T289
 Tyler, P. J., W149

U

Udabage, P., 643
 Udabage, S., 646
 Ugarte, C. E., W63
 Ullrey, D. E., 631
 Ulmer, R. R., 268
 Ulrich, B. T., 657
 Umberger, C., TH68
 Underwood, K. R., 277, 691
 Undi, M., W100, TH264, TH52
 Unruh, J. A., T123, T124
 Urano, F. S., T273, TH278, TH289, TH290,
 TH291, TH293
 Urban, J. F., 696
 Uriarte, J. M., W241, TH147, TH148
 Uruakpa, F. O., W82
 Usry, J. L., 201, 774
 Utsumi, S. A., W93, W94
 Uwituze, S., 344

V

Vaccaro, M., W197
 Vachiéry, N., TH14
 Vaddella, V. K., 307, 341
 Vafa, T., T225
 Vahdani, N., T242, TH286, TH287
 Vakili, A. R., W257
 Valadares Filho, S. C., T120, T250, T251,
 W235, W236, TH218
 Valdes, E. V., 180
 Valdez, F. R., TH124
 Valencia, D. G., T106, T107, W118, TH138,
 206, 297
 Valencia, E., W247
 Valenzuela-Soto, E., W79
 Valizadeh, R., T225, T233, TH248
 Valkeners, D., TH249
 Vallejo-Cordoba, B., W79
 Valls, N., W176
 Van Amburgh, M. E., T195, T265, TH57,
 TH69, 450
 van Arendonk, J. A. M., 611, 615
 Van Campen, H., 746, 747, 748, 750
 Van den Borne, J. J. G. C., 203
 Van der Meulen, J., TH7
 van Dorland, H. A., T185, 75
 van Duinkerken, G., 591
 Van Eenennaam, A. L., TH17
 Van Emon, M. L., TH282
 Van Hekken, D. L., T49
 van Heugten, E., W128, TH136, 197, 709
 van Hooijdonk, A. C. M., 615
 van Kempen, T., W128
 Van Kessel, J., T28
 Van Slyke, T., 481
 Van Soest, P. J., TH57, 187
 Van Tassel, C., T28
 Van Tassell, C. P., 261, 524
 van Valenberg, H. J. F., 615
 Van Vleck, L. D., 533
 Van Wagoner, H. C., 628
 van Zijderveld, S. M., 337
 VanBaale, M. J., 88
 VanCampen, H., 749
 VandeHaar, M., TH115, 687
 Vander Pol, K., W246
 Vander Pol, M., 341
 Vanderman, K., TH88, TH89, TH90, TH91
 vanderVoort, G., 771
 Vann, C., T67
 Vann, R. C., TH205, TH207, 317, 374, 576,
 577, 578
 VanRaden, P. M., 261, 522, 523, 524
 Vanzant, E. S., W253, TH75, TH79, 174, 665,
 730
 Vardhanabhuti, B., W68
 Varel, V., 725
 Varel, V. H., 311
 Varga, G., 315
 Varga, G. A., T196, TH254
 Vargas-Rodríguez, C. F., 653
 Varner, G., 164
 Varona, L., W41, W52, 760

Vasanthan, T., 710
 Vasconcelos, J. L. M., T182, W157, TH185
 Vasconcelos, J. T., TH226, 459, 608, 789
 Vasiljevic, T., 511
 Vasquez, P., W185
 Vaughn, J. O., 705
 Vazquez, E., W240, W241
 Vázquez, F., W96
 Vazquez, O., W96
 Vázquez-Añón, M., W207, W213, 33, 469
 Vazquez-Gonzalez, C., T241
 Veeger, A. I., 501
 Végvári, G., 704
 Veira, D. M., W193, 153, 814
 Veiseth, E., 559
 Velayudhan, B. T., TH108
 Velazquez, E. A., W266
 Velez, I. C., 283, 284, 715, 719
 Velleman, S. G., TH59
 Vendramini, J. M. B., TH48, TH50
 Veras, M. B., TH185
 Vereijken, P. F. G., 591
 Vernet, J., T229
 Versemann, B. A., T117, TH228
 Versteeg, C., 642, 643, 647
 Vester, B. M., 177, 178
 Vestergaard, M., T193
 Vicini, J. L., T189
 Vierck, J., 281
 Vignola, M., TH109, 694
 Viguera, J., 689
 Vilela, A. P., T103
 Villagran-Torres, D., W113
 Villalba, J. J., 383
 Villamide, M. J., T111
 Villareal, J. A., TH275
 Vines, K., TH89
 Vineyard, K. R., 447
 Viotto, W. H., TH18
 Visker, M. H. P. W., 611, 615
 Vitali, A., T4
 Vitti, D. M. S. S., T235
 Vogel, G. J., 735
 Volk, M., W98
 von Bernuth, R., W177
 von Keyserlingk, M. A. G., W193, W198,
 W201, 87, 153, 814
 Vonnahme, K. A., T228
 Vukasinovic, N., T32
 Vyas, D., TH267

W

Waggoner, E., 130
 Wagner, B. A., 319, 484
 Wagner, E. L., TH86, 444
 Wagner, G. W., 455
 Wagner, J. J., 100, 101, 213, 218, 321, 746,
 747, 748, 749, 750
 Wahlberg, M. L., 502
 Waldron, B. L., 273
 Waldron, D., 759
 Waldron, D. F., TH274

- Waldron, M. R., 121
Walker, C. E., 218, 737
Walker, G., 101
Walker, N., W294
Walker, P, TH151
Wall, E. H., TH110, 449, 554
Wall, R. J., TH64
Wallace, R. L., 667
Waller, J. C., TH40, TH41
Walraven, T., TH127, 199, 712
Walsh, R. B., 716
Walters, K., 475
Waltman, L., W222
Walton, J. S., 716
Wan, J., 647
Wang, A., T34
Wang, B. W., T130, T132, T133, W48, W129, W134, TH120
Wang, C. M., 276
Wang, J. K., 291, 358
Wang, J. P., TH206
Wang, J. Q., T2, T29, T171, T172, T205, T206, T207, T215, T218, T230, T231, T232, T255, T279, W90, W224, W277, W278, W279, W280, TH70, TH206, TH219, TH233, TH236
Wang, J. Z., W291
Wang, K. N., TH129, 198
Wang, L., T132, W48, TH160, TH236
Wang, L. Q., TH236
Wang, M. H., TH153
Wang, Q. L., T132
Wang, S. X., TH130
Wang, W., W124, TH130
Wang, W. C., TH157, TH158, 781
Wang, Y., T145, T146, T153, T154, T160, W141
Wang, Y. C., T132, T133, W48, W134
Wang, Y. J., W234
Wang, Y. Q., 250
Wang, Y. Z., 291, 358
Wang, Z., T269, T270, 345, 410, 768
Ward, A., 181
Ward, A. M., W65
Ward, R. T., T88
Warren, L. K., W102, 447, 448, 550
Wasdin, J. G., W37, W38, W39
Washburn, S. P., W71, W153, 236, 765
Wasmuth, E., 696
Watson, C. J., 809
Watson, D. M., W71
Watson, D. W., W71
Watson, K. C., TH99
Wattiaux, M. A., W184, 367
Weaber, R., 432
Weaber, R. L., W40, 746, 747, 748, 749, 750
Weakley, D., 184
Weary, D. M., W193, 153, 814
Weaver, E., TH8
Webb, G. W., TH84, 285
Weber, T., 292
Weber, T. E., TH128, 784
Weedman, S., T73
Weeks, H. A., TH68
Weems, C. W., 477
Weems, Y. S., 477
Wehnes, C., TH10
Wei, H. Y., T2, T29, T171, T172, T205, T206, T207, T215, T218, T230, T231, T232, T255, W90, W224, W277, W278, W279, W280, TH70, TH206, TH219, TH233, TH236
Wei, X. X., T132, T133, W48, W134
Weidgraaf, K., W63
Weigel, D. J., W246
Weigel, K. A., T103, TH237, 10, 11, 83, 408, 625, 766
Weiler, H., TH109
Weimer, P. J., 37, 340
Weiss, W. P., 466
Welch, C., 389
Welch, C. M., 799
Welch, R. M., 696
Welcome, F., 481
Welkie, D. G., 340
Welles, E. G., TH133, TH134
Wells, J. E., 311
Welper, M., 114
Welsh, C., W50, 570, 759
Welsh, J. L., T66
Welsh, Jr., T. H., T173, W24, TH205, TH207, 74, 152, 317, 374, 576, 577, 578
Wen-Xuan, W., 103
Werner, J., TH91
Werner, J. R., 235
Wertz-Lutz, A. E., 668
West, J. W., 59
West, M., T69
Wester, T. J., W63
Weström, B. R., TH61, TH62
Wettemann, R. P., W146, W147, TH165
Whalon, M. E., 360
Whang, K. Y., T145, T153, W283, W284, W285, TH122, TH142
Wharton, M. D., T112
Wheeler, E. F., TH256
Wheeler, T. L., W54
Wheeler, T. T., 805, 807
Wheelock, J. B., TH161, TH163, 86, 88, 373
Whisenhunt, B., T169
Whisnant, C. S., T175, W153
Whitaker, B. D., 567
White, B. J., 392
White, H., TH150
White, M. E., TH76, TH77, TH78
White, R., 106
White, S. N., 348
White, T., W47
Whitehead, T. R., TH128
Whitley, N. C., T271
Whitlock, D. A., W164
Whitlock, R., T28
Whitlock, R. H., 482
Whitlow, L. W., W222
Whittier, J., 432
Whyte, T. D., 586
Wick, M. P., T36, TH59
Wickersham, T. A., TH49
Widel, P. W., 247
Widjaja, H. C. A., TH7
Widowski, T., 242
Wiegand, B., TH225
Wiegand, B. R., T117, TH228
Wierenga, K. T., T99
Wiggans, G. R., 261, 524
Wilcox, C. S., TH3
Wildeus, S., TH279, 759
Wilken, M. F., 798
Wilkins, D., 518
Wilkinson, J. R. C., 479, 480
Wilkinson, T. W., 170
Willard, S., T3, 389, 573
Willard, S. T., TH181, TH207, 317, 374, 576, 577, 578
Willenburg, K. L., 569
Williams, C., W182, 104
Williams, C. A., TH95, 446
Williams, C. C., 58
Williams, C. M., 765
Williams, G., 231
Williams, G. L., T186, 283, 284, 715, 719
Williams, J., TH225, 637
Williams, J. L., 630
Williams, K., W145
Williams, S., W276
Williams, S. B., 192
Williams, S. C., 565
Williams, S. M., 776
Williamson, L. M., 442
Willis, G. M., T198
Wilson, C., TH52
Wilson, D., TH225
Wilson, D. G., 125
Wilson, D. J., 249, 253, 652, 717, 718, 722
Wilson, F. A., 279
Wilson, K. R., 789
Wilson, M. E., 478
Wiltbank, M. C., W158, W165, W172, TH240
Winand, N. J., 548
Winkelman, L. A., T184
Winkler, C., 153
Winston, D. R., 110, 127, 234
Winterholler, S. J., 589
Winters, T. A., T169
Wirth, T., 304
Wise, T. H., TH170
Wiseman, J., TH16
Witherspoon, J. M., 551
Wittenberg, K. M., W100, TH52, TH264
Woda, A., T167
Wohlt, J., TH195
Wolf, C. A., 90
Wolfe, S., TH172
Wolter, B. F., 36
Wood, C. H., 546
Wood, C. M., 502, 504
Wood, K. M., TH229
Woodward, A. D., 288, 289, 551
Woodward, B. W., 403, 405
Woodward, J., 716
Woodworth, J. C., T109, T110, T113
Worku, M., T11, W85
Wormuth, J., W14, 386
Woyengo, T. A., 190

Wrenn, B., 587
Wright, C., 432
Wright, E. C., W146, TH165
Wright, J. R., T18, T19, T21, 10, 13
Wright, S. D., 572
Wu, C., 291
Wu, G., TH58, TH154
Wu, G. Y., W125, W287, W288, TH157, TH158, 781
Wu, T., W141
Wu, X., TH160
Wu, X. P., T130, W129, TH120
Wu, Y. M., 358
Wu, Z., 107, 793
Wulff, F., T268
Wulji, T., T63, T78
Wuthironarith, V., W178

X

Xavier, C. V., T250, T251
Xia, N., TH236
Xia, X., TH129, 198
Xian-Lin, X., 103
Xie, C. Y., TH160
Xin, H. S., T203
Xu, C., T160
Xu, H. J., W125, W140, TH155
Xu, P. W., W140
Xu, Z., T160, W141
Xue, Y., 3, 76

Y

Yagci, A., T180
Yamamoto, M., 122
Yamamoto, S., 122
Yamauchi, K., W19
Yamka, R., W61
Yamka, R. M., W62, 174, 421
Yan, X., 277
Yancey, J. W. S., T109, T110, T112, T113
Yang, H., 294
Yang, J., 662
Yang, Q., 470
Yang, S. L., T205, T206
Yang, W. Z., T199, W217, W254
Yang, X., T160, 40, 662
Yang, Y., T34
Yang, Y. X., TH153
Yang, Z. B., T131
Yang, Z. G., W48
Yantis, B., 570
Yao, G., W141
Yao, J., TH162, 714
Yao, K., TH154
Yapici, O., T174
Yaqoob, M., 98, 731
Yasuda, K., 696
Yasue, H., T34

Yates, D. A., 460
Yavru, S., T174
Yelich, J. V., 375
Yi, X. W., 342
Yildiz-Gulay, O., T179, T180
Yin, F. G., W125, W288, W289
Yin, Y., W123, W124, TH130, TH154
Yin, Y. L., W125, W140, W287, W288, W289, TH155, TH156, TH157, TH158, TH159, TH160, 781
Ying, Y., W216, 580, 743
Yoder, M. J., TH85
Yokoo, M. J., W45
Yokoyama, M., W177
Yoo, J. S., T142, T143, T144, T145, T147, T148, T152, T153, T154, W137, TH123, TH142, TH143, TH144
Yoon, I. K., 369
Yoon, J. H., T157
Yoon, S. Y., TH153
Young, A., T69, T70
Yu, P., T194, W227, W280
Yu, S. H., T132, T133, W48
Yuan, Z. P., 342
Yucel, U., W68
Yue, B., T132, T133, W48, W129, W134
Yun-Guo, Z., 103
Yurgec, M., 138

Z

Zárate-Martínez, J. P., W161
Zacaroni, O. F., 323, 324
Zachut, M., TH179
Zaghari, M., W126, 204
Zahmatkesh, D., T190, W195
Zahran, S. E., T72
Zaman, S., 307, 341
Zamuner, F., W236
Zandi, M. B., W30, W31
Zanella, E. L., W150
Zanella, R., T28, W150
Zanton, G. I., T236, 217
Zao, H., T131
Zavala-García, F., W104, W105
Zeinali, A., T140
Zeng, S., 345
Zeng, S. S., T272, W291
Zeoula, L. M., T219, T220
Zerbini, E., 384
Zerby, H. N., 350
Zhang, C. G., T2, T29, T171, T172, W90
Zhang, C. M., 342
Zhang, H., T50, W291
Zhang, H. T., TH70
Zhang, L., T272, 474
Zhang, M. A., T130, T132, T133, W48, W129, W134, TH120
Zhang, Q., T132, T133
Zhang, W., T37, W128, 690
Zhang, Y., 587
Zhang, Y. J., 198
Zhang, Y. Z., W287
Zhao, B., 662
Zhao, G. Q., T29, T171
Zhao, H., TH129
Zhao, S. G., T230, T231
Zhao, Y., TH129, 198
Zhou, J. C., TH129, 198
Zhou, L., 335
Zhou, L. Y., T2, T29, T171, T172, T205, T206, T207, T215, T218, T230, T231, T232, T255, W90, W224, W277, W278, W279, W280, TH70, TH206, TH219, TH233, TH236
Zhou, T. X., T144, T152
Zhou, Y., 686
Zhou, Y. W., 335
Zhu, C. L., 191
Zhu, D., TH33
Zhu, M. J., 277, 472, 474, 691
Zhu, Y. X., T231
Ziaei, H., T140
Ziegler, B., TH188, TH189, TH190, TH191, TH192, TH193, TH194
Ziegler, D., TH188, TH189, TH190, TH191, TH192, TH193, TH194
Ziegler, G. R., T100
Zijlstra, R. T., 710, 783
Zimbelman, R. B., 86, 88, 108
Zinn, R., W252
Zitnan, R., W243
Zulewska, J., TH19, TH20, TH24, 510
Zumbach, B., 532
Zwieten, J., W271, 738

Program at a Glance

Monday, July 7

| Room | 8:00 am - 12:00 pm | 12:00 pm - 1:00 pm | 1:00 pm - 5:00 pm | Evening |
|-------------------------------|---|--------------------|--|---|
| Exhibit Hall C,D,E | Exhibit and Poster Setup | | | |
| 500 Reception Room | | | | 8:30 pm Opening Reception |
| 103 | | | (2:00-3:00 pm) ADSA Production Division Council Meeting; (3:00-4:00 pm) ADSA Production Division Nominating Committee | |
| 104 | | | (5:00-6:00 pm) ADSA Dairy Foods Division Council Meeting | |
| 105-106 | | | (1:00-3:00 pm) 2008 & 2009 Program Committee Meeting | |
| 107-108 | | | (3:00-5:00 pm) Late Breaking/Hot Topics Abstract Session | |
| 111 | Speaker Ready Room | | | |
| 112 | Presentation Pre-Loading Room | | | |
| 113 | Hospitality Room | | | |
| 116 | SAD Midday Mixer | | | |
| 117 | | | (2:00-5:00 pm) ASAS Retirees Gathering | |
| Sagamore Ballroom 3, 4 & 5 | | | | 7:00 pm Opening Session |
| 201 | (10:00-11:00 am) SAD Officers & Advisor Meeting; (11:00 am-12:00 pm) SAD Quiz Bowl Officials Meeting | | Quiz Bowl holding room | |
| 202 | (11:30 am-12:00 pm) SAD Quiz Bowl Seating Test | | SAD Quiz Bowl Seating/ Preliminary Rounds (Room 1) | |
| 203 | | | SAD Quiz Bowl Seating/ Preliminary Rounds (Room 2) | (5:30-6:00 pm) SAD Quiz Bowl Final Round |

Program at a Glance

Tuesday, July 8

| Room | 7:30 am - 9:30 am | 9:30 am - 12:30 pm | 12:30 pm - 2:00 pm | 2:00 pm - 5:00 pm | Evening (4:00-6:00 pm) Exhibitor Reception |
|-----------------------|----------------------|--|--|--|--|
| Exhibit Hall C,D,E | Poster Presentations | | Commercial Exhibits (7:30 am - 6:00 pm) | | |
| 500 Ballroom | | | | ALPHARMA Beef Cattle Nutrition and Beef Species Joint Symposium - Producing Quality Beef in a Bio-based Economy | |
| 101-102 | | ESS Symposium: Horse Genome Toolbox for Animal Science Applications | | Bioethics: Value of Bioethics Leadership for Food Animal Agriculture | |
| 103 | | (9:30 am-12:00 pm) Forages & Pastures Symposium: Fiber fermentation: Influence of supplemental nonstructural carbohydrates | (12:30-1:00 pm) ASAS Graduate Student Business Meeting | (2:00-4:45 pm) Small Ruminant Symposium: The U.S. Goat Meat Industry and Recent Sheep and Goat Activities at the National Research Council of The National Academies | |
| 104 | | (9:30-10:15 am) ADSA Southern Section GS Competition; (11:00 am-12:30 pm) ADSA/ASAS Northeast Section GS Competition | | (2:00-4:00 pm) Forages and Pastures I | (5:00-6:00 pm) ADSA Town Hall Meeting |
| 105-106 | | Nonruminant: Mineral Absorption: What is Known? | | Nonruminant Nutrition: Protein and Amino Acids | |
| 107-108 | | Production, Management and the Environment: Measuring and Evaluating Environmental Stress | | (2:00-4:30 pm) Nonruminant Nutrition: Mineral | |
| 109-110 | | Extension Education: Has the Land Grant College left the farm? | | ADSA Southern Section Symposium & Business Meeting | |

Program at a Glance

Tuesday, July 8

| Room | 7:30 am - 9:30 am | 9:30 am - 12:30 pm | 12:30 pm - 2:00 pm | 2:00 pm - 5:00 pm | Evening |
|---------------------|-------------------------------|--|---|--|---------|
| 111 | | Speaker Ready Room | | | |
| 112 | Presentation Pre-Loading Room | | | | |
| 113 | Hospitality Room | | | | |
| 115 | | (10:30 am-12:30 pm) ARPAS Exam | ACAN Annual Meeting | (2:00-4:00 pm) ARPAS Exam | |
| 116 | | | (12:30-2:00 pm) Michigan State University Lunch | | |
| 117 | | | | (2:00-3:30 pm) Discover Steering Committee | |
| 120 | | (9:30 am-12:15 pm) Dairy Food: Chemistry and Microbiology | | (2:00-4:00 pm) FASS Ag Guide Workshop | |
| 121 | | (9:30 am-12:00 pm) ADSA Dairy Foods GS Competition | | (1:30-5:00 pm) Dairy Foods: Advances in low fat cheese (DMI) | |
| Sagamore Ballroom 2 | | (9:30 am-12:00 pm) Beef Species Symposium: The Evolution of Beef Cattle Genetic Evaluation | | (2:00-4:30 pm) ASAS Cell Biology Symposium: The Role of MicroRNA on Cell Function | |
| Sagamore Ballroom 3 | | (9:30 am-12:15 pm) Meat Science: Meat Quality: Regulation of Intramuscular Fat Deposition | | (2:00-4:45 pm) Ruminant Nutrition and Production, Management & Environment Joint Symposium: Designing Field Studies to Evaluate Nutrition Effects on Production, Reproduction and Health of Dairy Cows | |
| Sagamore Ballroom 4 | | (9:30-11:30 am) Ruminant Nutrition: Forages | | (2:00-4:45 pm) Ruminant Nutrition: Growing Youngstock, Calves and Heifers | |

Program at a Glance

Tuesday, July 8

| Room | 7:30 am - 9:30 am | 9:30 am - 12:30 pm | 12:30 pm - 2:00 pm | 2:00 pm - 5:00 pm | Evening |
|---------------------|-------------------|---|--|---|---------|
| Sagamore Ballroom 5 | | (9:30 am-12:15 pm) Ruminant Nutrition: Minerals and Vitamins | | | |
| Sagamore Ballroom 6 | | Breeding & Genetics: Current Issues in Dairy Cattle Breeding | | Breeding & Genetics: Training of Future Animal Breeders | |
| Sagamore Ballroom 7 | | Physiology: Nutrition and Growth, Reproductive and Lactational Performance | | | |
| 201 | | (9:30-10:30 am) SAD Judging of Yearbooks, Scrapbooks, Annual Reports | | | |
| 202 | | (9:30-10:30 am) SAD In- terviews for Outstanding Student and Advisor Awards | | | |
| 203 | | (8:30-9:15 am) SAD Business Meeting; (9:30-10:45 am) SAD Activities Symposium; (11:00 am-12:15 pm) SAD Undergraduate Presenta- tions-Dairy Foods | (12:45-3:00 pm) SAD Undergraduate Presenta- tions-Dairy Production | (3:15-5:15 pm) SAD Under- graduate Presentations- Original Research | |
| 204 | | (9:30-11:30 am) ADSA Dairy Production GS Competition | | (2:00-4:00 pm) Compan- ion Animals: Comparative Animal Biology; (4:00-5:00 pm) Companion Animals: Student Competition | |
| 206 | | (9:30-11:00 am) Animal Health I; (11:00 am-12:30 pm) Animal Health II | | Animal Health III | |

Program at a Glance

Wednesday, July 9

| Room | 7:30 am - 9:30 am | 9:30 am - 12:30 pm | 12:30 pm - 2:00 pm | 2:00 pm - 5:00 pm | Evening |
|--------------------|---------------------|---|---|---|--|
| Exhibit Hall C,D,E | Poster Presentation | Exhibits Open (7:30 am - 5:00 pm) | | | |
| 500 Ballroom | | Breeding & Genetics Symposium: Genome Wide Selection | | Ruminant Nutrition Symposium: Glycerin as a Feed for Ruminants | |
| 500 Reception Room | | | (11:45 am-2:00 pm) ADSA-SAD Awards Luncheon | (2:00-3:00 pm) ADSA-SAD Award and Club Photos | |
| 101-102 | | Bioethics Symposium: How do we integrate bioethics into our food animal system? | | (2:00-4:30pm) Animal Behavior and Well-Being: Livestock: Swine and Sheep | |
| 103 | | (9:30 am-12:00 pm) Forages & Pastures Symposium: Forage-based systems for beef and dairy cattle production: Regional challenges and opportunities | | (2:00-3:45 pm) Forages and Pastures II | (5:00-6:00 pm) Racing to Indy: The ASAS Open Forum |
| 104 | | Horse Species I | | Horse Species II | |
| 105-106 | | (9:30-11:30 am) Nonruminant Nutrition: Past and Future of Nonruminant Nutrition; (11:30 am-12:30 pm) Nonruminant Nutrition: Feed Additives I | | Companion Animals: Perceptions and Implications of Companion Animals in Research and Teaching - Domestically and Globally | |
| 107-108 | | Swine Species | | Small Ruminant: Sheep | |
| 109-110 | | (9:30 am-12:00 pm) Production, Management and the Environment: Young Stock, Environment and Management | | Extension Education Symposium: From 40 acres and a mule to today: Historical perspective of Extension programming | |

Program at a Glance

Wednesday, July 9

| Room | 7:30 am - 9:30 am | 9:30 am - 12:30 pm | 12:30 pm - 2:00 pm | 2:00 pm - 5:00 pm | Evening |
|------------------------|-------------------|--|--|--|---------|
| 111 | | Speaker Ready Room | | | |
| 112 | | Presentation Pre-Loading Room | | | |
| 113 | | Hospitality Room | | | |
| 115 | | (9:30-11:30 am) ARPAS Exam | | | |
| 116 | | | NE ASAS/ADSA Business Meeting & Award Luncheon | | |
| 120 | | (9:30 am-12:15 pm) Teaching/ Undergraduate and Graduate Education Symposium: The Changing Student and Influence of Technology on Learning | Dairy Foods Program- ming Meeting | (2:00-3:00 pm) ADSA Foundation Scholar Lecture - Production; (3:30-5:00 pm) ASAS JAS Forum (Division/Associate Editors and Authors) | |
| 121 | | (9:30-10:30 am) ADSA Foun- dation Scholar Lecture – Dairy Foods; (10:30-11:30 am) Danisco International Dairy Science Award Lecture; (11:30 am-12:30 pm) Dairy Foods Division Business Meeting | | Dairy Foods Symposium: Changes and challenges of probiotics in dairy products | |
| Sagamore Ballroom 1 | | Animal Health IV | | (2:00-4:15 pm) Meat Science and Muscle Biology: Beef Quality | |
| Sagamore Ballroom 2 | | (9:30-11:45 am) Production, Management and the Environment; Nutrient Management and the Environment | | Animal Health V | |

Program at a Glance

Wednesday, July 9

| Room | 7:30 am - 9:30 am | 9:30 am - 12:30 pm | 12:30 pm - 2:00 pm | 2:00 pm - 5:00 pm | Evening |
|---------------------|-------------------|---|--|--|---------|
| Sagamore Ballroom 3 | | (9:30 am- 12:15 pm) Ruminant Nutrition: Fats and Fatty Acids | | Breeding & Genetics: Applications of Genomic Analysis | |
| Sagamore Ballroom 4 | | Physiology and Endocrinology Symposium: Emerging Concepts on Dietary Components that Influence the Physiology and Endocrinology of Domestic Farm Animals | | Nonruminant Nutrition Symposium: Oxidative Stress and the Use of Antioxidants for Nonruminant Animals | |
| Sagamore Ballroom 5 | | Growth and Development: Historical Perspective and Future Direction | | | |
| Sagamore Ballroom 6 | | (9:30 am-12:15 pm) Ruminant Nutrition: Rumen Fermentation and Microbiology | | Physiology and Endocrinology: The Physiology of Gestation and the Postpartum Interval | |
| Sagamore Ballroom 7 | | (9:30 am-11:30 am) Meat Science and Muscle Biology: Measuring and Manipulating Pork Quality; (11:30 am-12:45 pm) Physiology and Endocrinology: Effects of Environment and Handling on Performance | | (2:00-4:00 pm) ASAS Graduate Student Symposium: Academia, Industry, Government, or None of the Above: Graduation is coming, what next? | |
| 201 | | | ASAS Graduate Student Lunch and Learn: An Industry Perspective on How to Get a Job | | |

Program at a Glance

Wednesday, July 9

| Room | 7:30 am - 9:30 am | 9:30 am - 12:30 pm | 12:30 pm - 2:00 pm | 2:00 pm - 5:00 pm | Evening |
|------|-------------------|---|---|--|--|
| 202 | | (11:30 am-12:30 pm) ARPAS/PAS Editorial Board Meeting | ADSA DF Division Milk Proteins & Enzyme Committee | (2:30-3:30 pm) ADSA-SAD Committee Meeting - Old and New Officers and Advisors | |
| 203 | | (8:30-9:30 am) SAD Business Meeting and Election of Officers; (9:30-11:00 am) SAD Student Career Symposium; (11:30 am-12:30 pm) ADSA Production Division Business Meeting | | (2:00-4:15 pm) Teaching/ Undergraduate and Graduate Education: Teaching in the Animal Sciences | (5:00-6:00 pm) USDA-ARS Staff Update Session |
| 204 | | Food Safety: Assuring Food Safety in a Globalized Market | | (2:00-4:30 pm) Lactation Biology I | |
| 205 | | (9:30 am-12:00 pm) Small Ruminants: Goats and Sheep | | (2:00-3:45 pm) Production, Management and the Environment: Disease, Management and Environment | (5:00-6:00 pm) Block & Bridle Club |
| 206 | | Animal Behavior and Well-Being: Swine | ARPAS Business Meeting | (2:00-4:30 pm) ARPAS Symposium: Livestock Pharmaceuticals: The Past, The Present, The ... | |

Program at a Glance

Thursday, July 10

| Room | 7:30 am - 9:30 am | 9:30 am - 10:30 am | 10:30 am - 12:30 pm | 12:30 pm - 2:00 pm | 2:00 pm - 5:00 pm | Evening | |
|----------------------|-------------------------------|--|--|--------------------|--|-------------------|--|
| Exhibit Hall C, D, E | Poster Presentations | Exhibits Open (7:30 am-3:00 pm); Exhibit Teardown (3:00-6:00 pm) | | | | | |
| 500 Reception Room | | | | | | Closing reception | |
| 101-102 | | | (10:30 am-12:45 pm) Animal Behavior and Well-Being Symposium: Animal Welfare Standards - Who Decides and How? | | International Animal Agriculture: Welfare in Animal Production, from Science to Practice | | |
| 103 | | | (9:30 am-5:00 pm) Mixed Models Workshop | | | | |
| 104 | | | (10:30-11:30 am) Forages and Pastures: Centennial Presentations; (11:30 am-12:30 pm) Forages and Pastures III | | Companion Animals: Exotic Animal Nutrition | | |
| 105-106 | | | (10:30 am-12:45 pm) Swine Species Symposium | | Nonruminant Nutrition: Energy Utilization | | |
| 107-108 | | | Breeding and Genetics: Current Issues in Swine Breeding | | (2:00-4:00 pm) Nonruminant Nutrition: Feed Additives II | | |
| 109-110 | | | Breeding and Genetics: Computational issues in genomic analysis | | (2:00-4:30 pm) Ruminant Nutrition: Protein and Amino Acids - Beef | | |
| 111 | Speaker Ready Room | | | | | | |
| 112 | Presentation Pre-Loading Room | | | | | | |
| 113 | Hospitality Room | | | | | | |



Program at a Glance

Thursday, July 10

| Room | 7:30 am - 9:30 am | 9:30 am - 10:30 am | 10:30 am - 12:30 pm | 12:30 pm - 2:00 pm | 2:00 pm - 5:00 pm | Evening |
|------------------------|-------------------|--------------------|--|--------------------|---|----------------------------------|
| 115 | | | | | (2:00-4:00 pm) ARPAS Exam | |
| 116 | | | | | | Companion Animal Reception |
| 120 | | | (10:30-11:45 am) Dairy Foods: Cheese I | | (2:00-4:00 pm) Meat Science and Muscle Biology: Meat Science Research: Past, Present, and Future | |
| 121 | | | (10 am-12:45 pm) Dairy Foods: Processing/ Products II | | Dairy Foods: Emerg- ing nonthermal food processing technolo- gies- Their potential in dairy systems | |
| Sagamore Ballroom 1 | | | Meat Science and Mus- cle Biology Symposium: Postmortem Changes in Myofibrillar Protein and the Associated Contri- bution to Meat Quality | | Animal Health VI | |
| Sagamore Ballroom 2 | | | Horse III | | ADSA Production Divi- sion Symposium: Dairy Replacement Heifers: Cost Effective Strate- gies from weaning to calving | |
| Sagamore Ballroom 3 | | | Ruminant Nutrition: Nitrogen Sources and Utilization | | Contemporary & Emerging: Healthful- ness of Dairy and Meat Products | |
| Sagamore Ballroom 4 | | | Nonruminant Nutrition: Distillers Grains for Swine | | Breeding and Genet- ics: Current Issues in Beef Cattle Breeding | |

Program at a Glance

Thursday, July 10

| Room | 7:30 am - 9:30 am | 9:30 am - 10:30 am | 10:30 am - 12:30 pm | 12:30 pm - 2:00 pm | 2:00 pm - 5:00 pm | Evening |
|---------------------|-------------------|---------------------------------------|---|--|---|---------|
| Sagamore Ballroom 5 | | | (10:30 am-12:15 pm) Ruminant Nutrition: Carbohydrate Byproducts - Dairy | | Ruminant Nutrition: Rumen Fermentation Modifiers | |
| Sagamore Ballroom 6 | | | Lactation Biology II | | Lactation Biology III | |
| Sagamore Ballroom 7 | | | The DC Connection: Science Policy, Research Support, and the Profes- sional Animal Scientist | | Breeding and Genet- ics: Breeding for Milk Quality and Test-Day Model Applications | |
| 203 | | ASAS Business Meeting | | (12:30-2:30 pm) Feed Analysis Consortium | | |
| 204 | | | (10:30 am-12 pm) Food Safety Centennial Presentations | | Growth and Development: General Topics | |
| 205 | | | (10:30 am-12:15 pm) Physiology and Endocrinology: Enhancing Reproductive Efficiency | | Physiology and Endocrinology: Synchronization of Estrus in Cattle | |
| 206 | | (9:30-10:00 am) ADSA Business Meeting | (10:30 am-12:00 pm) Physiology and Endocrinology: Health and Immunology | | (2:00-4:30 pm) Extension Education - all species | |

Program at a Glance

Friday, July 11

| Room | 8:30 am - 11:30 am | 1:00 pm - 5:00 pm |
|---------------------|--|-------------------|
| 101-102 | Animal Behavior and Well-Being: Beef and Dairy Cattle | |
| 103 | Mixed Models Workshop (day 2) | |
| 105-106 | Nonruminant Nutrition: Energy Systems and Alternative Energy Ingredients for Swine | |
| 107-108 | (8:30-11:00 am) Nonruminant Nutrition: Protein and Feed Additives | |
| Sagamore Ballroom 1 | Growth and Development: Symposium: The molecular basis for feed efficiency | |
| Sagamore Ballroom 2 | (8:30-10:15 am) Ruminant Nutrition: Acidosis, DCAD and acid-base metabolism; (10:15-11:45 am) Ruminant Nutrition: Feeding behavior, chewing and digestibility | |
| Sagamore Ballroom 3 | (8:30 am-5:00 pm) Triennial Lactation Symposium | |
| Sagamore Ballroom 4 | (8:30-11:45 am) Ruminant Nutrition: Energy and Carbohydrate Byproducts - Beef | |
| Sagamore Ballroom 7 | Breeding and Genetics: Dairy, Sheep & Goat - Crossbreeding, Inbreeding & Breed Conservation | |
| 111 | Speaker Ready Room | |
| 112 | Presentation Pre-Loading Room | |
| 113 | Hospitality Room | |

Notes

Notes

Notes

Notes

MONSANTO
imagine®



Imagine
innovative
agriculture
that
creates
incredible
things
today.

learn more at monsanto.com

Monsanto, imagine and the vine symbol are trademarks of Monsanto Technology, LLC
© 2007 Monsanto Company

Future Meeting Dates

2009

Montreal, Quebec Canada
(ADSA, ASAS, CSAS, AMPA)
July 12-16, 2009

2010

Denver, CO
(ADSA, ASAS, PSA, Western ASAS)
July 11-15, 2010